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Revision A

"AS-BUILT" DESIGN SPECIFICATION
FOR
HISTORICAL DAILY DATA BASES FOR TESTING ADVANCED MODELS
Job Order 74-963
AD 63-1347-4963-08

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FOR HISTORICAL DAILY DATA BASES FOR TESTING
ADVANCED MODELS (Lockheed Electronics Co.)
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For
EARTH OBSERVATIONS DIVISION
SPACE AND LIFE SCIENCES DIRECTORATE



National Aeronautics and Space Administration
LYNDON B. JOHNSON SPACE CENTER
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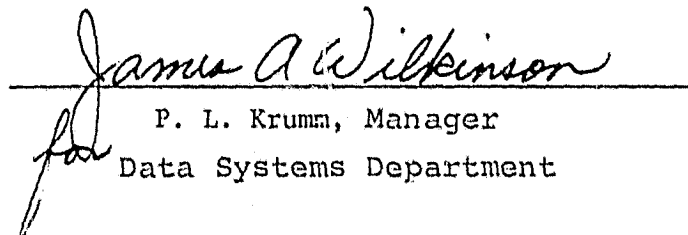
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AD 63-1347-4963-08

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For

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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1. SCOPE

This document describes the acquisition of daily weather data from North Dakota and Kansas, the reduction of U.S.S.R. synoptic observations (4-8 observations daily) to daily data and conversion of all three data sets to the formats utilized by advanced wheat yield models. Data from the three areas are available on tape, those of each area having a unique format. Tapes were built by converting these data to one of two possible formats, depending on the amount of data available.

North Dakota and Kansas data contain daily temperature maximums and minimums, as well as total daily precipitation. North Dakota precipitation information is less detailed than that of Kansas. No significant manipulation is required to convert these data to the needed formats.

Synoptic data are available for the U.S.S.R., with a maximum of eight 3-hourly observations per day containing detailed weather information recorded at the time of observation. An algorithm is applied to the U.S.S.R. data to estimate daily maximum and minimum temperatures and sum the daily precipitation.

Nineteen tapes have been obtained to date from NOAA's National Climatic Center (NCC) at Asheville, North Carolina including synoptic weather data from WMO blocks 33, 28, and 35. In general Block 33 covers the western three-fourths of the Ukraine, Block 28 covers the area on both sides of the Ural Mountains and Block 35 includes the area between the Ural Mountains and the Aral Sea. Within the wheat areas in these blocks daily precipitation and max-min temperature records have been derived for forty-seven stations for most years during the period 1965 through 1975. Additional tapes are available from NCC from which similar records could be derived for the roughly 80 percent of the U.S.S.R. not included in Blocks 33, 28, and 35.

2. APPLICABLE DOCUMENTS

- Job Order 63-1347-4963
- Action Documentation 63-1347-4963-08 (Task II, AD #1)

3. SYSTEM DESCRIPTION

3.1 HARDWARE DESCRIPTION

These data conversion programs will operate on an IBM 360/370 system with Fortran and PL/I compilers and magnetic tape drive. In the event that a PL/I compiler is not available, one short program can be rewritten in Fortran. These programs can also operate on a PDP 11/45 batch environment with a Fortran compiler and magnetic tape drive.

3.2 NORTH DAKOTA DATA BASE FORMAT AND CONVERSION PROGRAM

The tape obtained from North Dakota State University contains daily data for 59 North Dakota weather stations, each station on a separate file. NDSU personnel had assembled these data in 26-character records, with each record containing weather data for one day/station.

The North Dakota 26-character format is different from the standard 26-character format used for the advanced wheat yield models (Format I, referred to by Kansas State University personnel as "modified Kansas format"). A short PL/I program was written to convert the data of 12 stations to Format I. This program can be rewritten in Fortran if a PL/I compiler is not available. Documentation is given in Appendix A.

3.3 KANSAS DATA BASE FORMAT

The tape obtained from Kansas State University contains daily data for 39 Kansas weather stations, with each station on a separate file. KSU, in turn, had obtained their data from the National Climatic Center in Asheville, North Carolina, and had filled in missing data from local sources.

The tape format is referred to by KSU personnel as "Format II." It consists of 960-character records, with each record containing the necessary input weather data for one month/station. Documentation is given in Appendix B.

3.4 U.S.S.R. DATA BASE FORMAT AND CONVERSION PROGRAM

Nineteen tapes were obtained from the National Climatic Center in Asheville, North Carolina, covering World Meteorological Organization (WMO) blocks 28, 33, and 35 for the years 1965-1975. These tapes contain synoptic data for all reporting weather stations within these three areas, recorded in WMO tape deck format 9685.

The program to perform this conversion (max-min algorithm) and its subroutines are described subsequently.

3.4.1 MAX-MIN ALGORITHM

The Statistics Department of Kansas State University has developed a non-linear regression model to estimate maximum and minimum temperatures from synoptic data. This algorithm was programmed in Fortran by LEC personnel, using a main program supported by seventeen different subroutines and functional subprograms. The program is unique, with no other major library subroutines or linkage needed. Each of the subroutines will be described below under separate paragraph headings; flowcharts and sample listings of the main program and all subroutines will be found in Appendix C. The results are stored on a tape in Format I.

Program MINIMAX is designed to estimate the daily maximum and minimum temperatures for weather stations in the U.S.S.R. with greater than 90% accuracy when compared with Soviet-published daily weather data.

The algorithm is based on temperature readings recorded every three hours over a 24-hour interval. Two possible situations are associated with the given observations:

1. Fewer than eight readings in a 24-hour interval.
The estimation for minimum and maximum temperatures will be based on specified readings. Suitable correction factors derived from the algorithm are applied to the selected temperature readings to determine the day's minimum and maximum temperatures.

- a. The daily minimum will utilize the following temperature readings:

Time	Hours		
<u>Zone</u>	<u>1st Choice</u>	<u>2nd Choice</u>	<u>3rd Choice</u>
00	03	06	00
01	03	00	06
02	03	00	06

- b. The daily maximum will use the following temperature readings:

Time	Hours		
<u>Zone</u>	<u>1st Choice</u>	<u>2nd Choice</u>	<u>3rd Choice</u>
00	15	12	09
01	12	15	09
02	12	09	15

2. Eight readings in a 24-hour interval.
The highest and lowest readings among the eight, with proper correction factors, will be the daily maximum and minimum temperatures, respectively.

3.4.2 SUBROUTINE CONV

The subroutine CONV is used to convert special characters (missing data) from the temperature and precipitation variables to numeric values. Input and output arguments are TEMP and PRECIP.

3.4.3 SUBROUTINE CMDTOJ

This subroutine converts the input arguments YR, MONTH and DAY into the Julian date and output argument, JILIAN.

3.4.4 SUBROUTINE EST1

If fewer than eight observations for a particular day have been recorded, this subroutine chooses the best possible hour and temperature reading to use in calculation of the sun time (ST) for the day's minimum temperature. If all eight observations have been recorded, this subroutine is not utilized. The input arguments are the station's time zone HO, an array of the day's temperature observations KHRTEM, the sun time correction factor SUNCOR, and the hour of observation HOUR. Output arguments are the sun time ST, and the position of the chosen temperature reading within the array of a day's observations HT.

3.4.5 SUBROUTINE EST2

If fewer than eight observations for a day have been recorded, this subroutine chooses the best possible hour and temperature reading to use in calculation of the sun time (ST) for the day's maximum temperature. If all eight observations have been recorded, this subroutine is not used. Input and output arguments are identical to those used in EST1.

3.4.6 SUBROUTINE ESTDTN

If fewer than eight observations have been recorded, this subroutine estimates the value for DTN, the correction factor for the daily minimum temperature. Regression coefficients were provided by the KSU Statistics Department. Input arguments are an array of regression coefficients B, an array of variable combinations X, the sun time ST, daylength DL and the average monthly temperature range for the station TR; the output argument is DTN.

3.4.7 SUBROUTINE ESTDTX

If fewer than eight observations have been recorded, this subroutine estimates the value for DTX, the correction factor for the daily maximum temperature. Regression coefficients were provided by the KSU Statistics Department. Input arguments are the same as those used in ESTDTN; the output argument is DTX.

3.4.8 SUBROUTINE MAXMIN

If fewer than eight observations are recorded, this subroutine estimates the daily maximum and daily minimum temperatures from the specified hour temperature readings. Input arguments are the correction factor for the daily maximum temperature DTX, the correction factor for the minimum temperature DTN, the recorded temperature at the hour chosen to calculate the maximum HTDX, and the hour chosen to calculate the minimum HTDN. Output arguments are the day's estimated maximum and minimum temperatures, DMAX and DMIN, respectively.

3.4.9 SUBROUTINE MAX

When all eight temperature observations have been recorded, this subroutine is used to find the highest temperature of the eight. The input arguments are an array of the day's observations KHRTEM, an array of subscripts to KHRTEM called K, and the sun correction factor SUNCOR. Output arguments are the maximum observed temperature OBSMAX and the hour at which this max occurred SMX.

3.4.10 SUBROUTINE MIN

When all eight temperature observations have been recorded, this subroutine is used to find the lowest temperature of the eight. The input arguments are the same as those for subroutine MAX; the output arguments are the minimum observed temperature OBSMIN and the hour at which this minimum occurred STMN.

3.4.11 FUNCTION DLNGTH

This functional subprogram estimates the daylength of each Julian day. The input arguments are the latitude of the station being considered XLAT and the Julian date DATE. The output is transferred back to the main program by the name of the functional subprogram DLNGTH.

3.4.12 SUBROUTINE PSUD01

When all eight temperature observations have been recorded, this subroutine estimates the correction factor for the daily minimum temperature DTN for stations located in time zone 00. Input arguments are an array of regression coefficients B, an array of variable combinations X, the hour at which the minimum temperature occurred STMN, daylength DL, average monthly temperature range TR and the sun time correction factor SC; the output argument is DTN.

3.4.13 SUBROUTINE PSUD02

When all eight temperature observations have been recorded, this subroutine estimates the correction factor for the daily maximum temperature DTX for stations located in time zone 00. Input arguments are an array of regression coefficients B, an array of variable combinations X, the hour at which the maximum temperature occurred STMX, daylength DL, average monthly temperature range TR and the sun time correction factor SC; the output argument is DTX.

3.4.14 SUBROUTINE PSUD03

When all eight temperature observations have been recorded, this subroutine estimates the correction factor for the daily minimum temperature DTN for stations located in time zone 01. Input and output arguments are identical to those of PSUD01.

3.4.15 SUBROUTINE PSUD04

When all eight temperature observations have been recorded, this subroutine estimates the DTX for stations in time zone 01. Input and output arguments are identical to those of PSUD02.

3.4.16 SUBROUTINE PSUD05

When all eight temperature observations have been recorded, this subroutine estimates the DTN for stations in time zone 02. Input and output arguments are the same as those of PSUE01.

3.4.17 SUBROUTINE PSUD06

When all eight temperature observations have been recorded, this subroutine estimates the DTX for stations in time zone 02. Input and output arguments are the same as those of PSUD02.

3.4.18 SUBROUTINE OUT

This subroutine is used to put the output information into Format I (see Appendix A). The input arguments are the station number STATN, year SAVYR, month SAVMON, day SAVDAY, estimated maximum temperature DMAX, estimated minimum temperature DMIN, the day's precipitation total SUMPRE. Output arguments are STATN, SAVYR, SAVMON, SAVDAY, maximum temperature MAX, minimum temperature MIN and the day's precipitation PRE.

4. OPERATION

To operate program MINIMAX the number of stations to be used, NUMSTA, must be declared. The following card input is necessary, using one card/station:

<u>Columns</u>	<u>Variable name, description</u>
1 - 5	STNARR, station number
6	blank
7 - 10	SUNARR, sun correction factor in thousandths of degrees longitude, no decimal point
11 - 70	TRARR, monthly temperature ranges, in hundredths °F, no decimal points
11-15	January temperature range
16-20	February temperature range
.	.
.	.
66-70	December temperature range
71	blank
72 - 75	LATARR, station latitude in hundredths of degrees, no decimal point
76 - 77	TZARR, station time zone location
78 - 80	blank

If more than 30 stations will be used, space for the above arrays must be increased. Output data from MINIMAX will be in Format I.

After conversion to either Format I or Format II, the North Dakota, Kansas and U.S.S.R. data bases may be directly accessed by the advanced wheat yield models.

APPENDIX A

FORMAT I

FORMAT I

Character String (per record)

1 - 6	Station number
7 - 8	Year
9 - 10	Month
11 - 12	Day
13	Blank
14 - 16	Max Temperature *
17 - 19	Min Temperature *
20 - 22	Blank
23 - 26	Precipitation **

* Temperatures are in whole degrees Fahrenheit with a leading minus sign if negative; missing temperatures are indicated by blanks or 999.

** Precipitation is in hundredths of inches with no decimal point; missing precipitation is indicated by 9999.

ORIGINAL PAGE 18
OF POOR QUALITY

REFORM: PROC OPTIONS(MAIN);

DCL 1 DAILY BASED(P),
CHAR(6),
2 STA# CHAR(2),
2 FILL1 CHAR(1),
2 YR CHAR(2),
2 MON CHAR(2),
2 DAY CHAR(2),
2 FILL2 CHAR(1),
2 CMAX CHAR(3),
2 FILL3 CHAR(1),
2 CMIN CHAR(3),
2 FILL4 CHAR(1),
2 CPPT CHAR(4),
DCL 1 NEWREC BASED(P),
CHAR(6),
2 STA# CHAR(2),
2 YR CHAR(2),
2 MON CHAR(2),
2 DAY CHAR(2),
2 FILL1 CHAR(1),
2 CMAX CHAR(3),
2 CMIN CHAR(3),
2 FILL2 CHAR(1),
2 CPPT CHAR(4),

original North Dakota format

format I

DCL DATAFIL FILE RECORD INPUT;
DCL OUTFIL FILE RECORD OUTPUT;
ALLOCATE DAILY;
ON ENDFILE(DATAFIL) GO TO EOF;

RD: READ FILE(DATAFIL) INTO (DAILY);
IF DAILY.YR < '31' 1 DAILY.YR > '74' THEN GO TO RD;
NEWREC = DAILY, BY NAME;
WRITE FILE(OUTFIL) FROM (NEWREC);
GO TO RD;

EOF: FREE DAILY;
END REFORM;

APPENDIX B

FORMAT II

FORMAT II

Character String (per record)

1 - 2	State Index #
3 - 6	Station Index
7 - 8	Year
9 - 10	Month
11 - 134	Precipitation (31 values)
135 - 227	Max Temperature (31 values)
228 - 320	Min Temperature (31 values)
321 - 382	Max water temperature - Pan (31 values)
383 - 413	Estimated precipitation (31 values)
414 - 475	Snowfall (31 values)
476 - 568	Snow Depth on ground (31 values)
569 - 661	Water equivalent of snow on ground (31 values)
662 - 785	Wind movement (31 values)
786 - 878	Evaporation (31 values)
879 - 940	Min water temperature - Pan (31 values)
941 - 960	All 1's

Precipitation (fields of 4)

Characters 11 - 134, 31 values, field of 4. For months with less than 31 days fill remaining fields with 9999.

Contents of each field

0001 - 9997	00.01 - 99.97 inches to hundredths
0000	for trace
0000	for no precipitation
9998	amount included in subsequent measurement
9999	missing or not reported

Maximum Temperature (fields of 3)

Characters 135 - 227, 31 values, field of 3. For months with less than 31 days fill remaining fields with 999.

Contents of each field

001 - 299	-99. to 199. °F. Bias each value by +100°F thus character string will contain values from 1 to 299
999	not reported or missing

Minimum Temperature (fields of 3)

Characters 228 - 320

Contents of each field (Same as for Maximum Temperatures)

Maximum Water Temperature - Pan (fields of 2)

Characters 321 - 382, 31 values, field of 2. For months with less than 31 days, remaining fields are 99.

Contents of each field

00 - 98 30 to 128°F Each temperature value is biased by -30°F; if temperature is greater than 128°F it is set to 128°F, if temperature is less than 30°F it is set to 30°F.
99 Missing or not reported

Estimated Precipitation (fields of 1)

Characters 383 - 413, 31 values, field of 1. For months with less than 31 days, remaining fields are 9.

Contents of each field

9 When daily precipitation was not estimated or when it is missing or not reported.
1 When daily precipitation was estimated.

Snowfall (fields of 2)

Characters 414 - 475, 31 values, field of 2. For months with less than 31 days, fill remaining fields with 99.

Contents of each field

01 - 97 1 to 97 inches rounded to nearest whole inch (if over 97 inches change to 97)
00 No snowfall
98 Amount included in subsequent measurement
00 Trace
99 Missing or not reported

Snow Depth on Ground (fields of 3)

Characters 476 - 568, 31 values, field of 3. For months with less than 31 days, fill remaining fields with 999.

Contents of each field

001 - 998 1-998 inches (whole inches)
000 None
000 Trace
999 Missing or not reported

Water Equivalent of Snow on Ground (fields of 3)

Characters 569 - 661, 31 values, field of 3. For months with less than 31 days, fill remaining fields with 999.

Contents of each field

000 - 998 00.0 to 99.8 inches of water
999 Missing or not reported

*NOTE....water equivalent data available only at first-order stations beginning October, 1963.

Wind Movement (fields of 4)

Characters 662 - 785, 31 values, field of 4. For months with less than 31 days, fill remaining fields with 9999.

Contents of each field

0000 - 9997	Whole miles (if over 9997 miles, change to 9997).
9998	Amount included in subsequent measurement
9999	Missing or not reported

Evaporation (fields of 3)

Characters 786 - 878, 31 values, field of 3. For months with less than 31 days, fill remaining fields with 999.

Contents of each field

001 - 997	0.01 - 9.97 (to hundredths)
998	Amount included in subsequent measurement
999	Missing or not reported

Minimum Water Temperature - Pan (fields of 2)

Characters 879 - 940

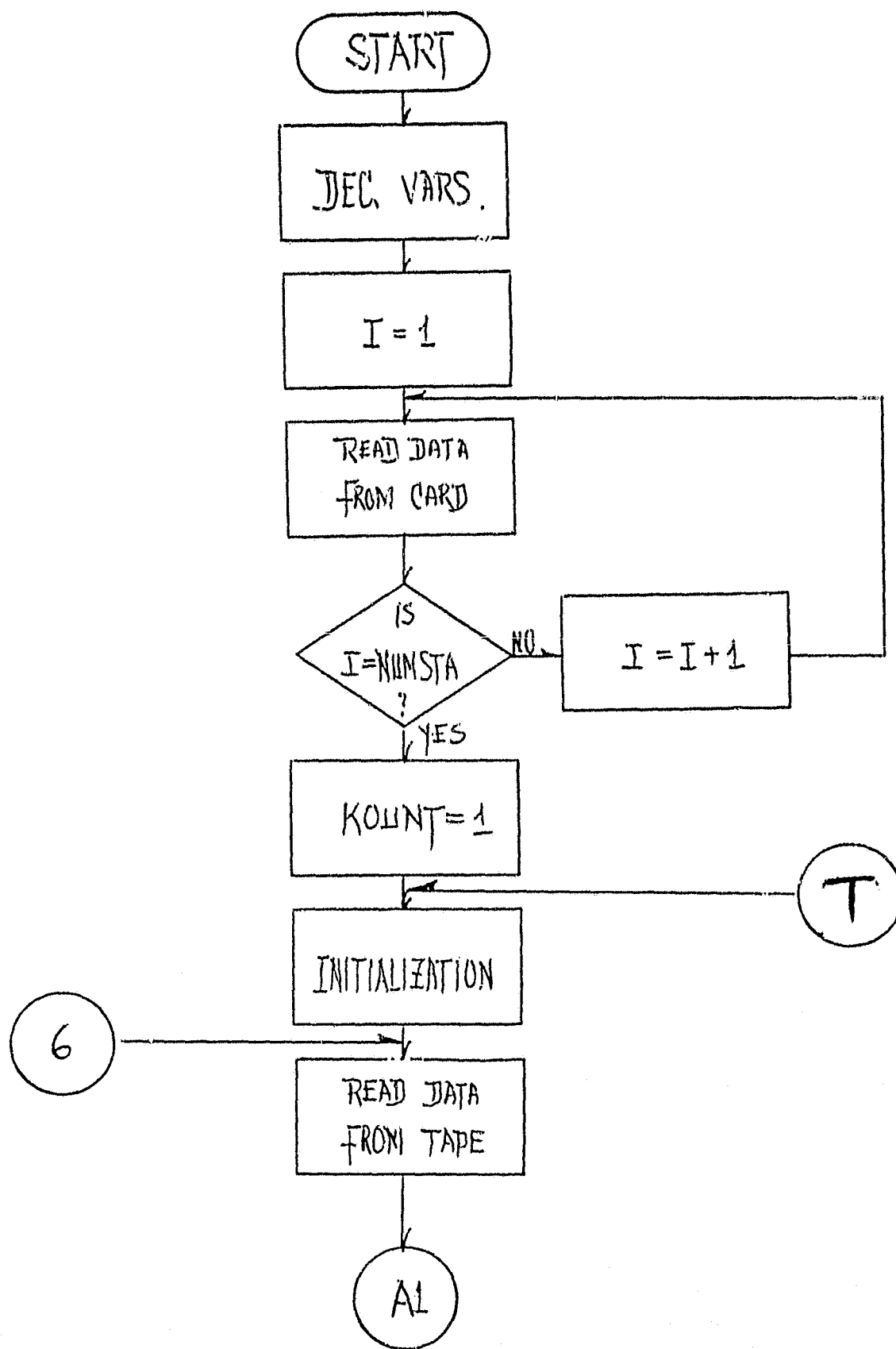
Contents of each field (same as for Maximum Water Temperature - Pan).

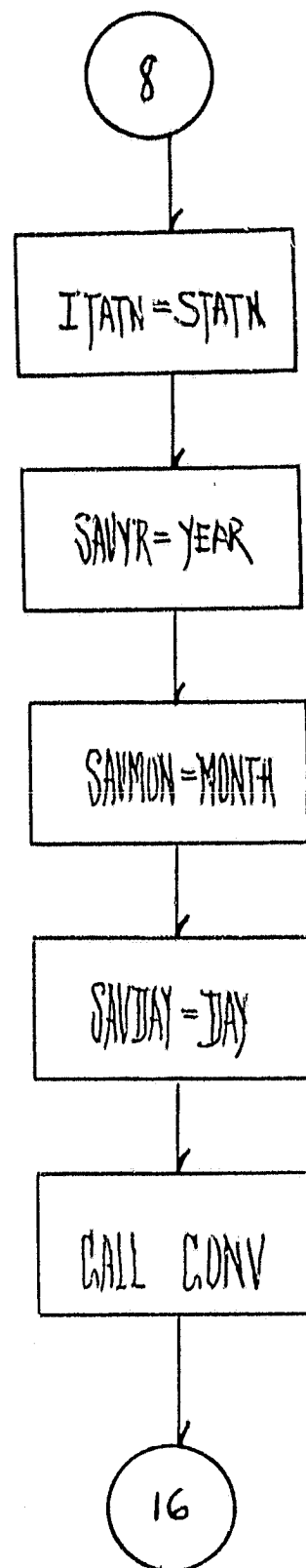
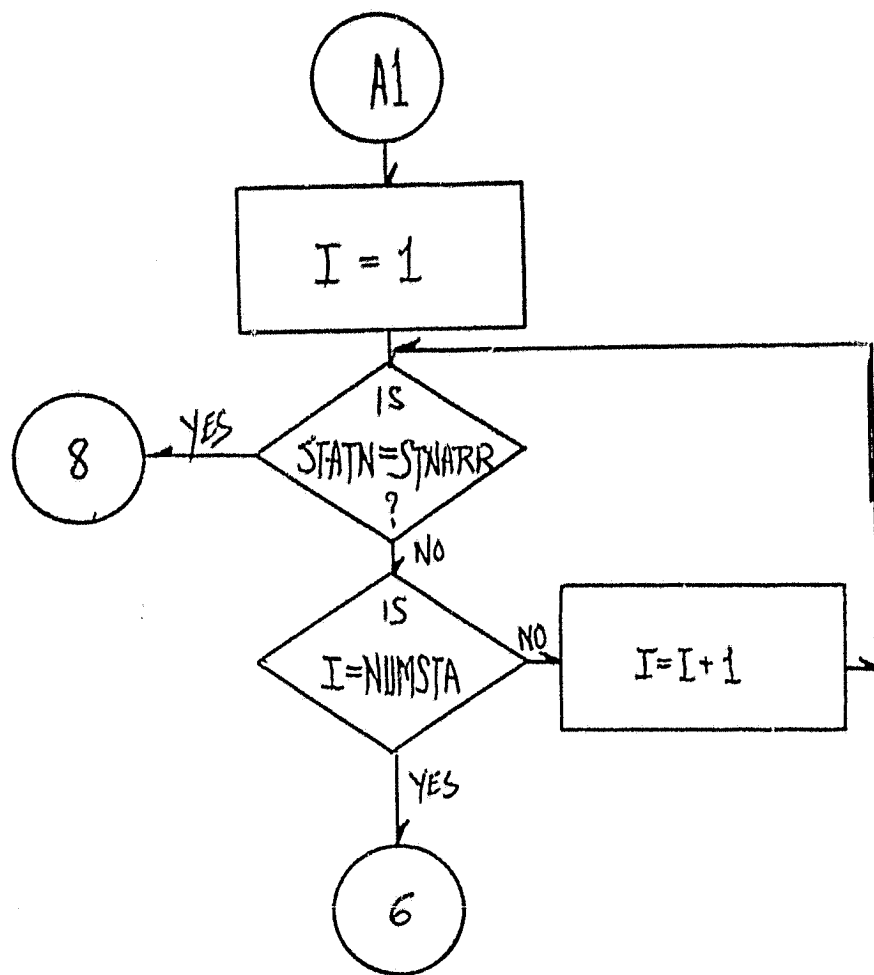
APPENDIX C
MAX-MIN ALGORITHM

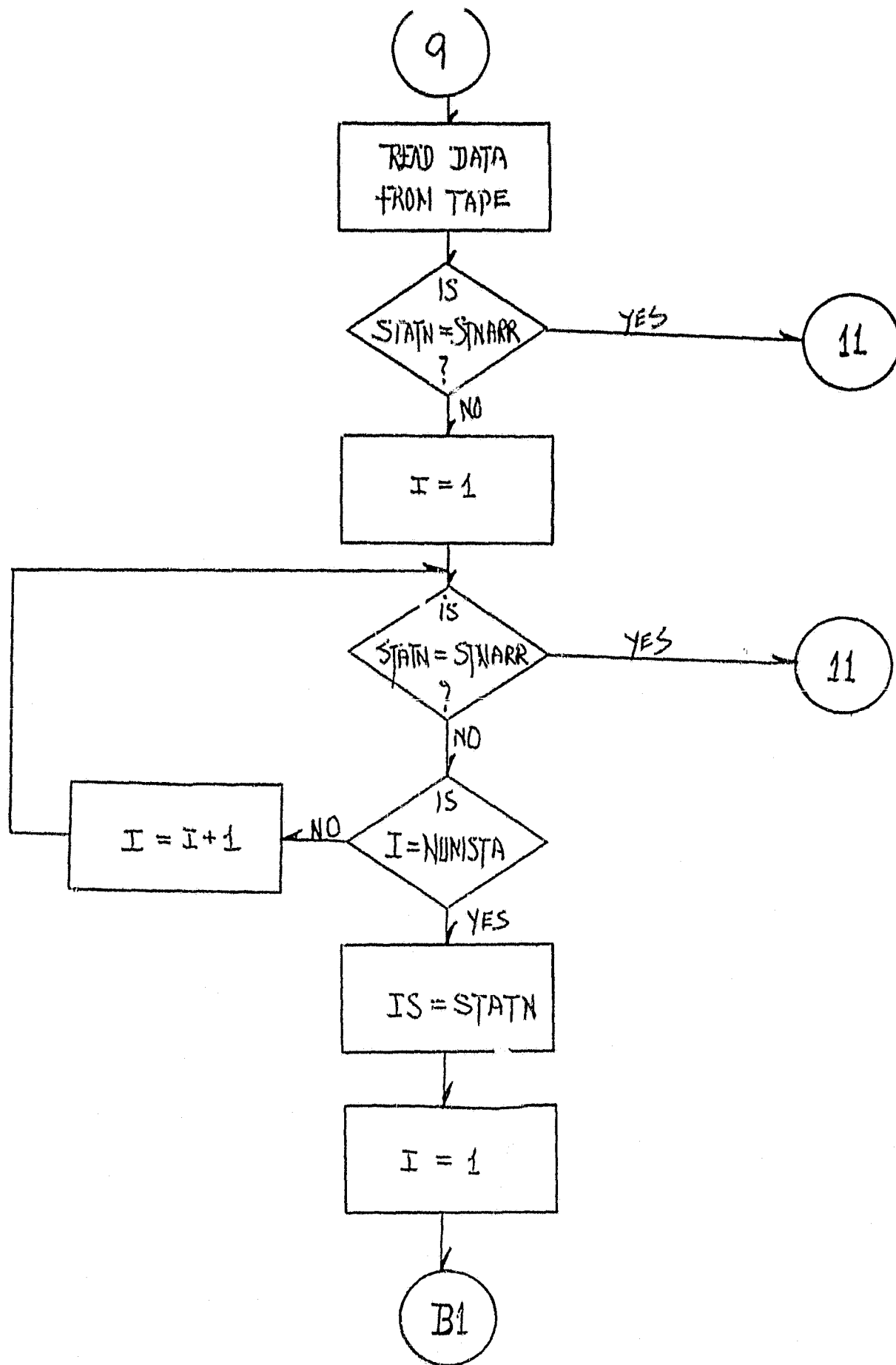
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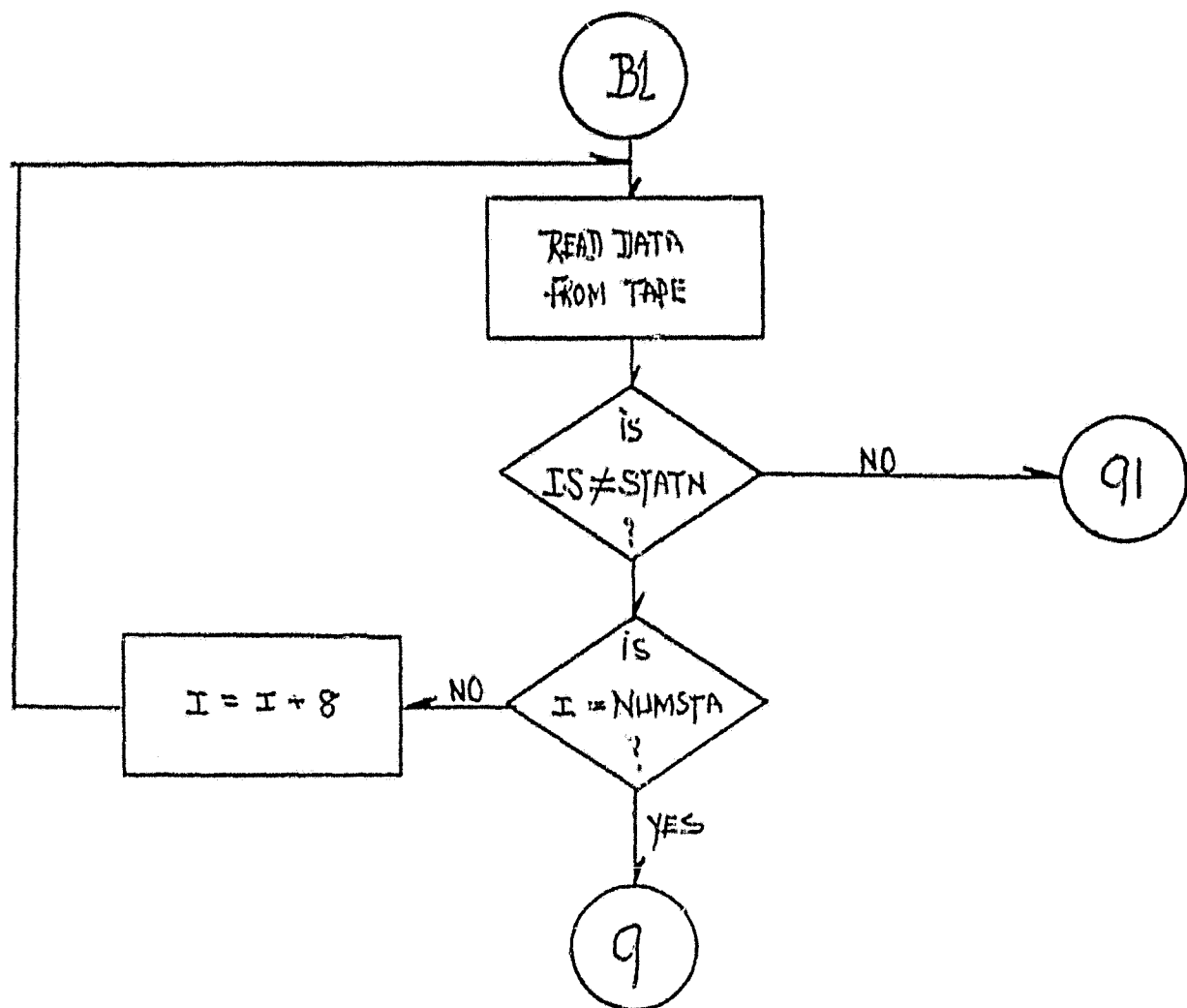
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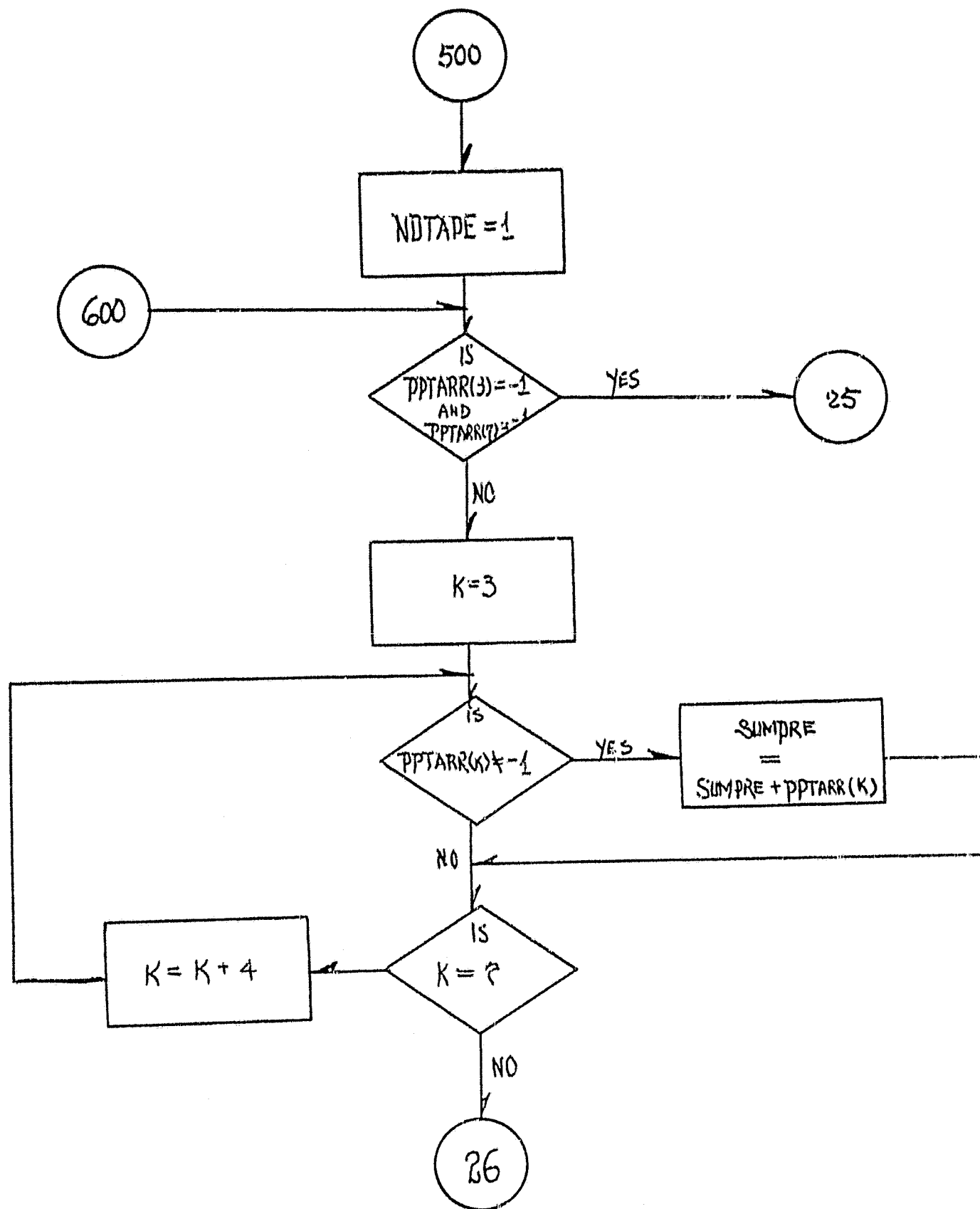
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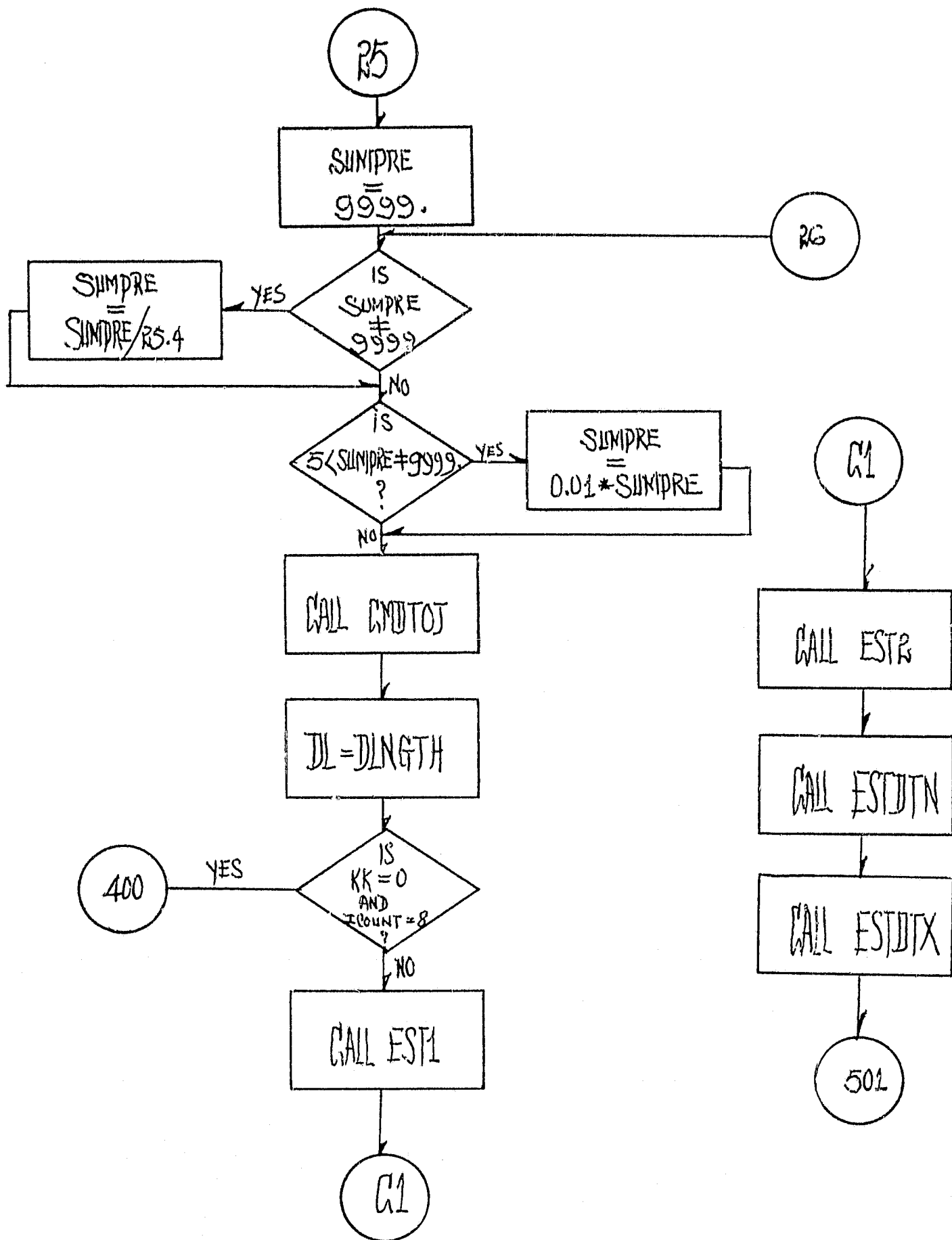




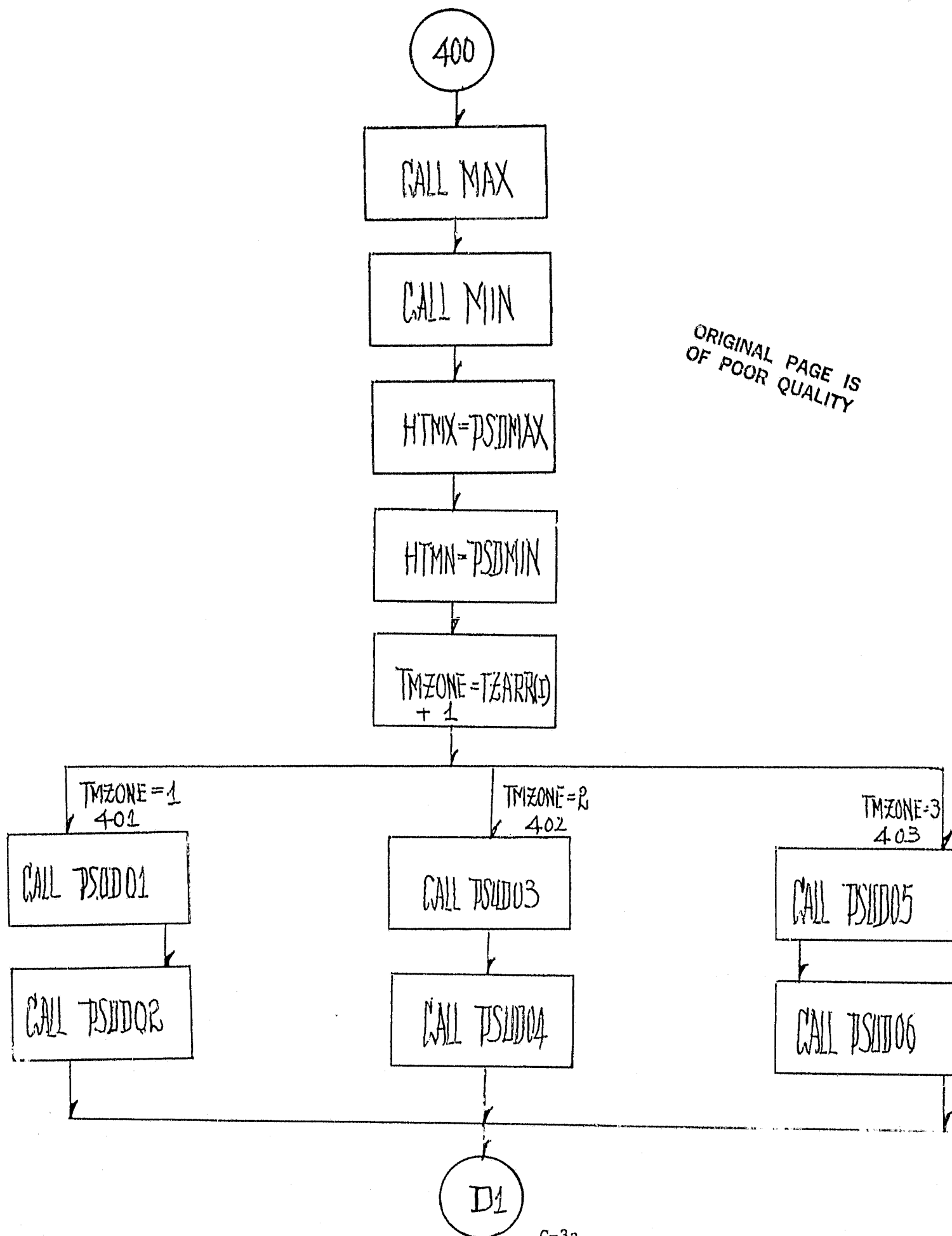


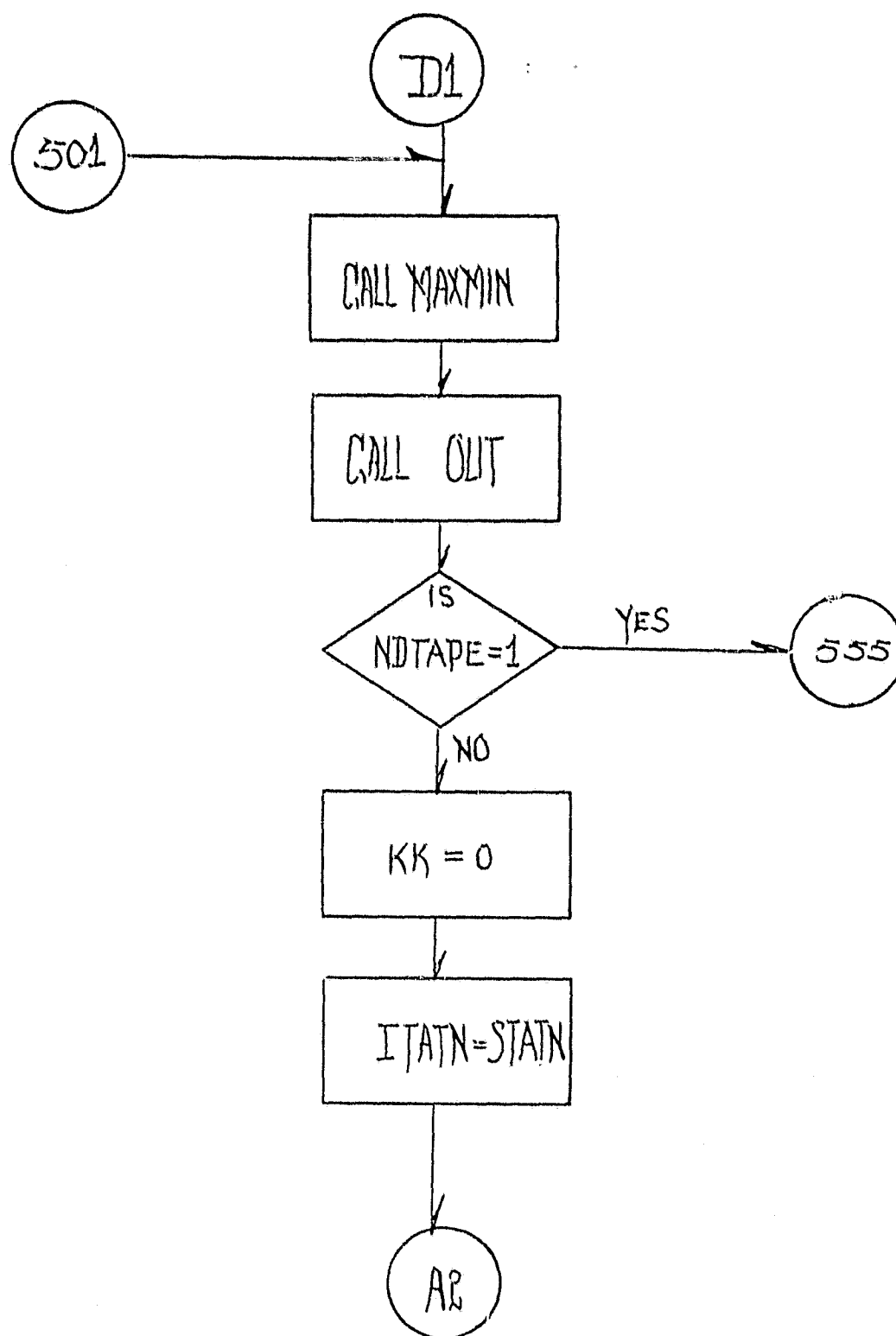


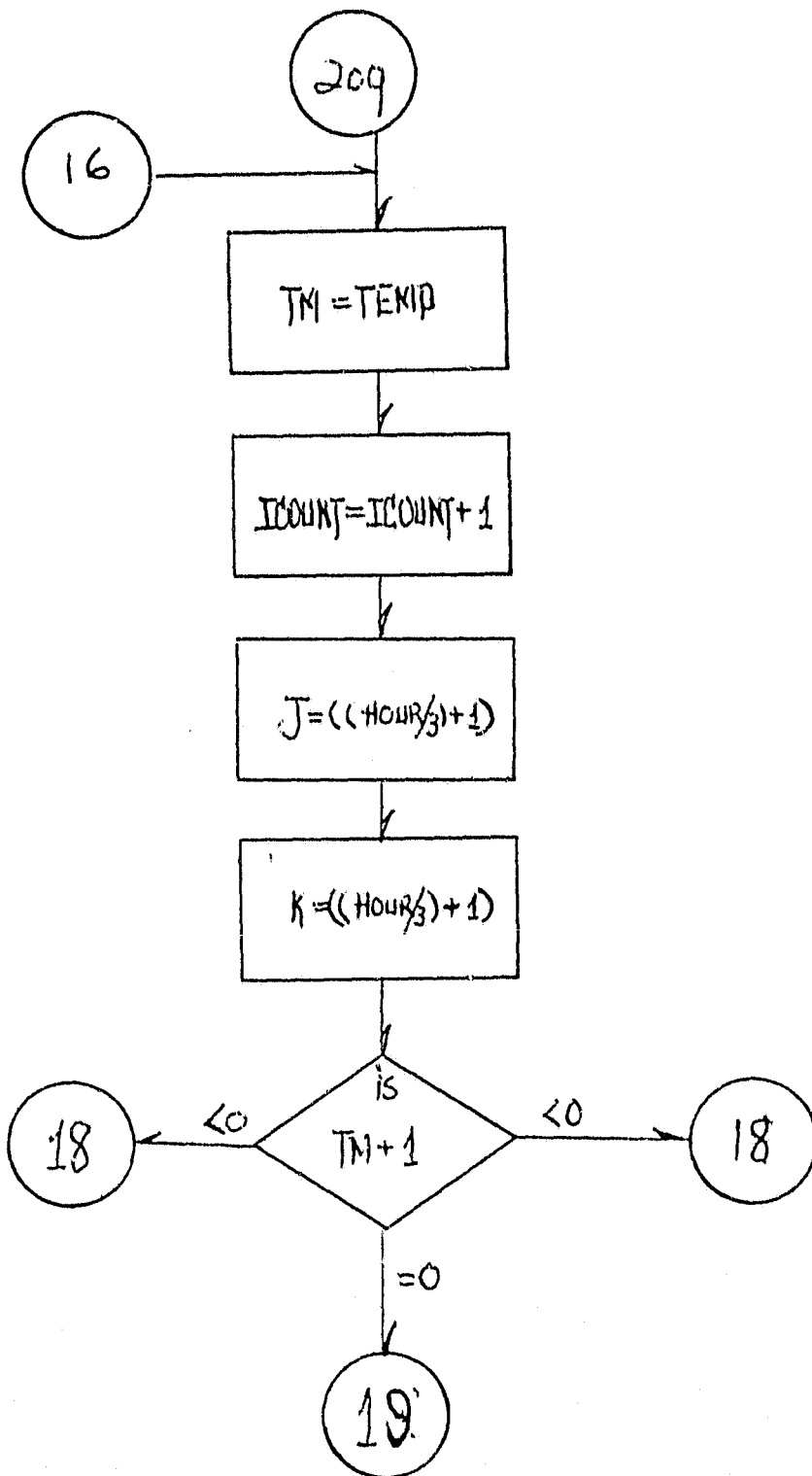
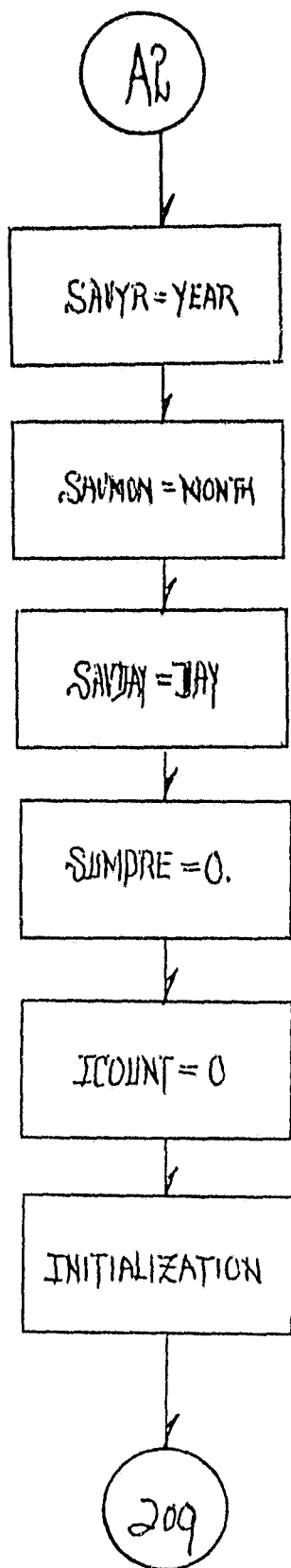


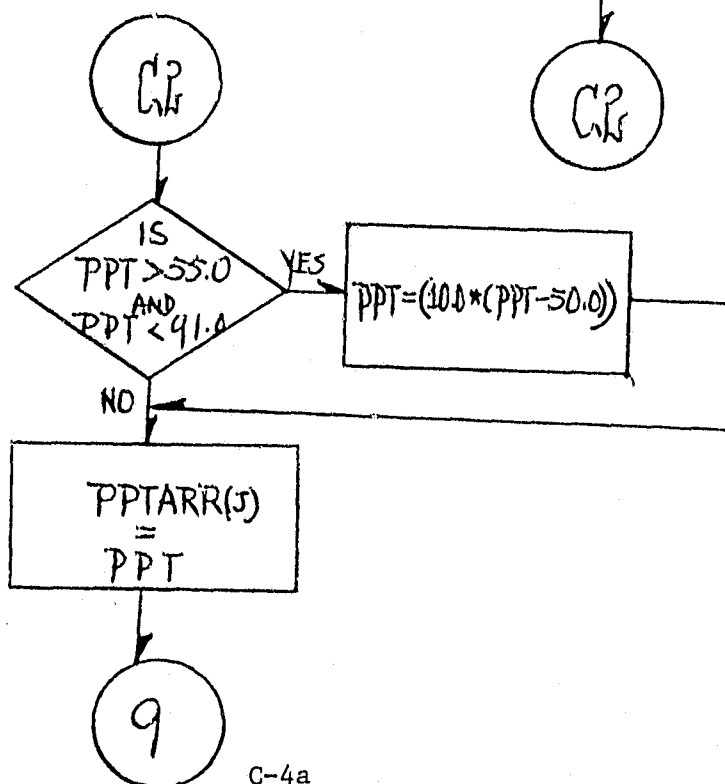
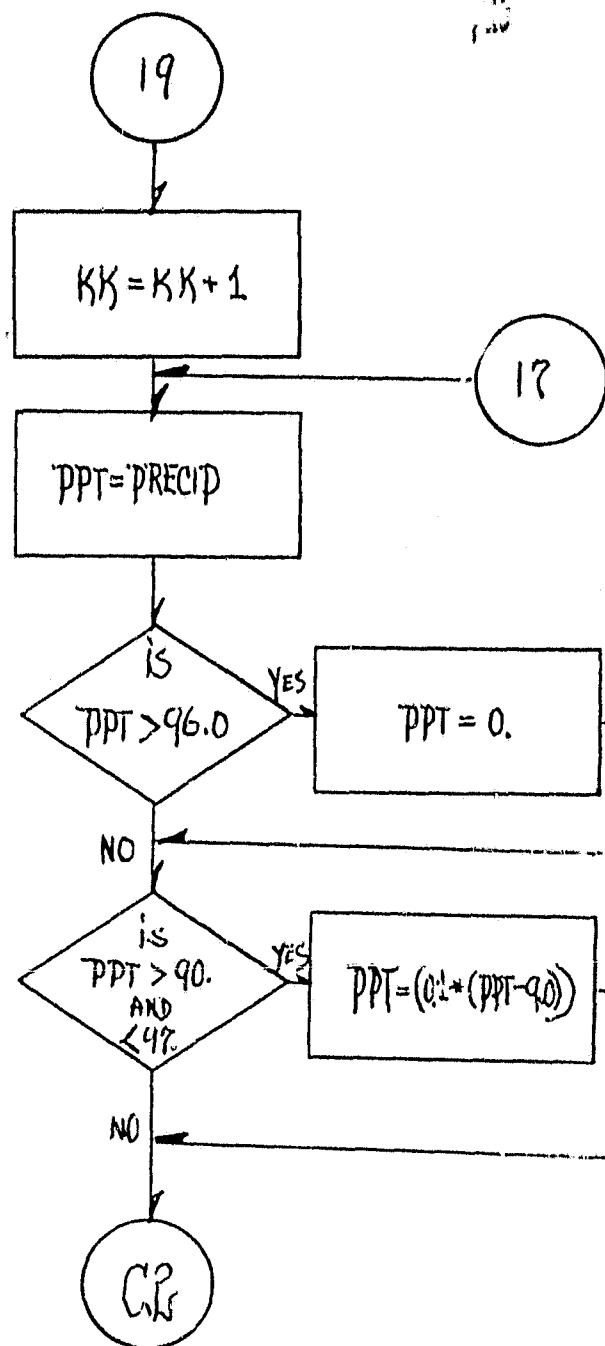
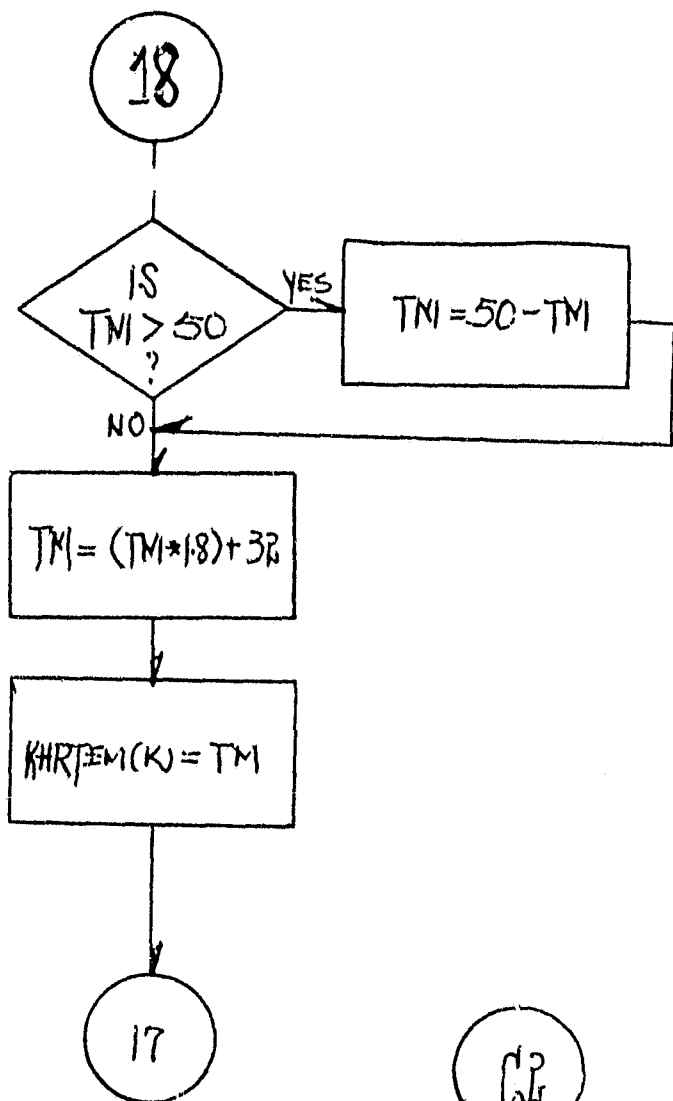


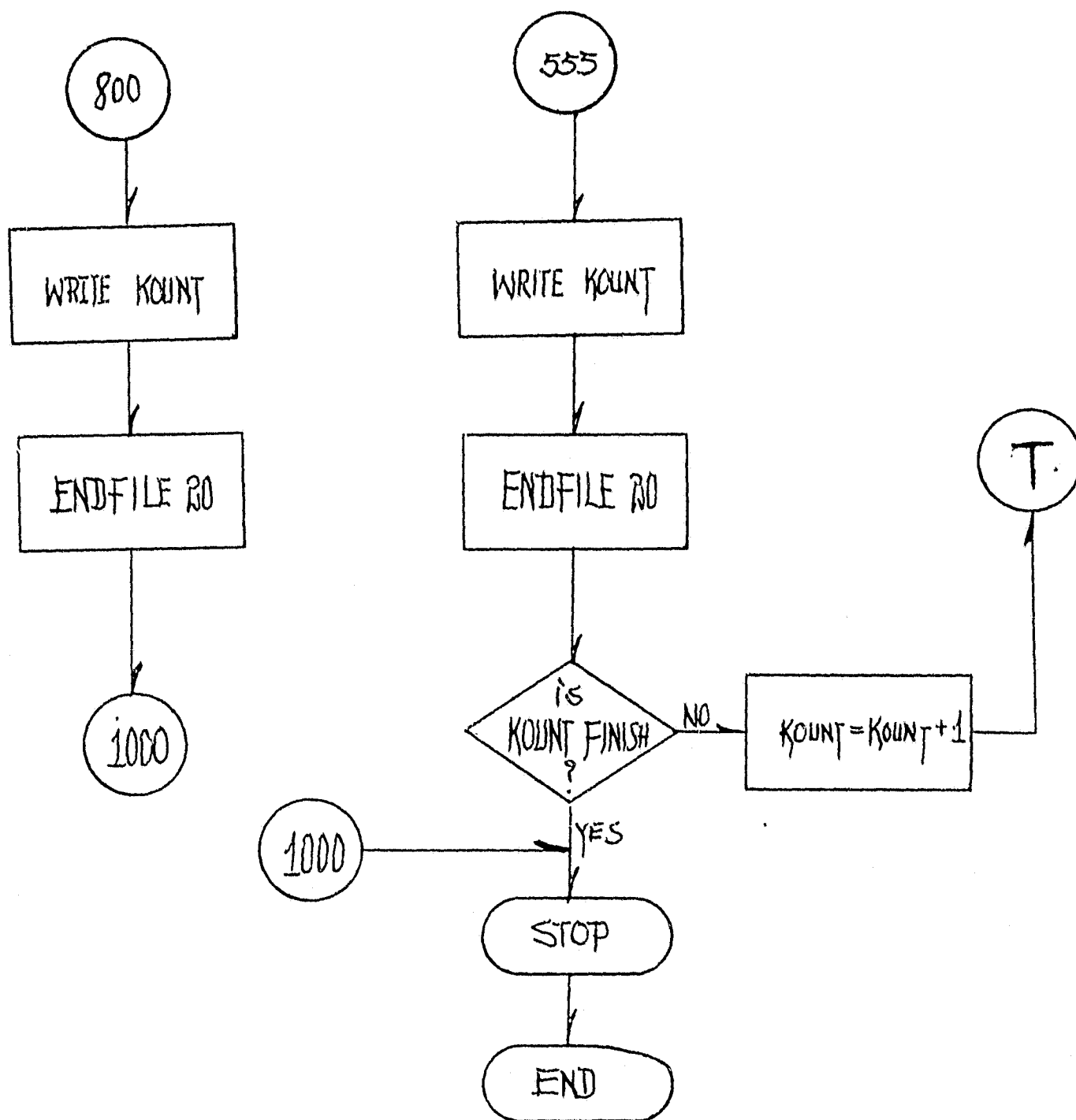
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*****
***** THE PSUEDO MINIMAX *****
***** ESTIMATION OF USSR *****
***** DAILY TEMPERATURE *****
*****
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0001 INTEGER*2 TEMP,PRECIP
0002 REAL SUNARR(30),TRARR(30,12),PPTARR(8),B(50),X(50),LATARR(30),
0003 +KHRTEM(8),DMAX,DMIN,SUMPRE
0004 INTEGER SAVYR,SAVMON,SAVDAY,STATN,YEAR,MONTH,DAY,HOUR,
0005 +STNARR(30),TZARR(30),TMZONE,BMAX,BMIN,PRE,ITATN
0006 'NUMSTA' IS THE NUMBER OF STATIONS TO BE USED
0007 NUMSTA=28
0008 READ CARD INPUT -- INFO ON STATION#, SUN CORRECTION FACTOR,
0009 MONTHLY TEMPERATURE RANGES,LATITUDE AND TIME ZONES
0010 DO 5 I=1,NUMSTA
0011 READ(5,4) STNARR(I),SUNARR(I),(TRARR(I,J),J=1,12),LATARR(I),
0012 *TZARR(I)
0013 S CONTINUE
0014 4 FORMAT (15,1X,F4.3,12(1X,F4.2),1X,F4.2,12)
0015 DO 1000 KOUNT=1,3
0016 KK=C
0017 SUMPRE=0.0
0018 ICOUNT = 0
0019 INITIALIZE PRECIP ARRAY TO ZERO
0020 DO 1 K=1,8
0021 1 PPTARR(K)=0.0
0022 INITIALIZE TEMP ARRAY TO '9999' TO CALL ATTENTION TO MISSING VALUES
0023 DO 2 K=1,8
0024 KHRTEM(K)=9999.
0025 2 CONTINUE
0026 3 FORMAT (15,1X,4I2,14X,A2,11X,A2)
0027 WRITE(20,55)
0028 55 FORMAT('STATN','YR','MO','DAY','MAX','MIN','3X','PRE')
0029 READ TAPE TO FIND FIRST 'WANTED' STATION TO INITIALIZE DUMMY
0030 VARIABLE 'SAVDAY'
0031 6 READ(18,3,END=800)STATN,YEAR,MONTH,DAY,HOUR,TEMP,PRECIP
0032 DO 7 I=1,NUMSTA
0033 IF(STATN.EQ.STNARR(I)) GO TO 8
0034 7 CONTINUE
0035 GO TO 6
0036 8 ITATN=STATN
0037 SAVYR=YEAR
0038 SAVMON=MONTH
0039 SAVDAY=DAY
0040 CALL CONV(TEMP,PRECIP)
0041 GO TO 16
0042 READ STATEMENT FOR THE REST OF THE TAPE INPUT
0043 9 READ(18,3,END=500) STATN, YEAR, MONTH, DAY, HOUR, TEMP, PRECIP
0044 IF(STATN.EQ.STNARR(I)) GO TO 11
0045 91 DO 10 I=1,NUMSTA
0046 IF(STATN.EQ.STNARR(I)) GO TO 11
0047 10 CONTINUE
0048 IS=STATN
0049 DO 92 I=1,2920,8
0050 READ(18,3,END=500) STATN,YEAR,MONTH,DAY,HOUR,TEMP,PRECIP
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OF POOR QUALITY

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FORTRAN IV G1 RELEASE 2.0          MAIN          DATE = 78021          10/31/40

0040/  IF (IS.NE.STATN) GO TO 91
0041  92 CONTINUE
0042  GO TO 9
      C WHEN A DIFFERENT DAY IS REACHED. THE DAY'S PRECIP VLUES ARE SUMMED
      C AND SUBROUTINES TO DERIVE MAX & MIN ARE CALLED; ELSE, THE PRECIP
      C AND TEMP ARRAYS CONTINUE TO BE FILLED WITH VALUES
0043  11 CALL CONV(TEMP,PRECIP)
0044  IF (DAY.EQ.SAVDAY) GO TO 16
      C WE ONLY USE THE VALUE OF PRECIP RECORDS AT THE HOURS OF 6 AND 18.
      C ALL OTHER PRECIPS ARE DISCARDED BECAUSE OF THE ERRORS OF
      C REPEATING PRECIP REPORTS BY OUR USSR COUNTERPART
      C GO TO 600
0045  500 NDTAPE=1
0046  WHEN NDTAPE=1 THAT IS END OF DATA
0047  600 IF (PPTARR(3).EQ.-1.AND.PPTARR(7).FQ.-1) GO TO 25
0048  DO 12 K=3,7,4
0049  IF (PPTARR(K).NE.-1) SUMPRE = SUMPRE + PPTARR(K)
0050  12 CONTINUE
0051  GO TO 26
0052  SUMPRE=999.9
0053  25 IF(SUMPRE.NE.999.0) SUMPRE=(SUMPRE/25.4)
      C WHEN THE DAILY TOTAL PRECIP IS GREATER THAN 5 INCHES
      C WE CONSIDER IT AS A POSSIBLE ERROR AND ONLY TAKE 1% OF IT
0054  IF(SUMPRE.NE.999.0) SUMPRE=GT.5.0) SUMPRE=0.01*SUMPRE
0055  CALL CMDTOJ(SAVYR,SAVMON,SAVDAY,JILIAN)
0056  DL=DLNGTH(LATARR(I),JILIAN)
0057  IF((KK.EQ.0).AND.(ICOUNT.EQ.8)) GO TO 400
      C WHEN THE 8 OBSERVATIONS ARE NOT COMPLETE. ESTIMATE PTX AND
      C PTN BY THE SPECIFIED HOURS PROCEDURE
0058  CALL EST1(TZARR(I),KRTM,SUNARR(I),HRMN,HTMN,STMN)
0059  CALL EST2(TZARR(I),KRTM,SUNARR(I),HRMX,HTMX,STMX)
0060  CALL ESTDN(DTN,B,X,STMN,DL,TRARR(I,SAVMON))
0061  CALL ESTDTX(DTX,B,X,STMX,DL,TRARR(I,SAVMON))
0062  GO TO 501
      C WHEN ALL 8 OBSERVATIONS APPEAR, USE A SET OF PROGRAMS
      C CORRESPONDING TO THE STATION'S TIME ZONE TO ESTIMATE PTX AND PTN
0063  400 CALL MAX(KRTM,8,PSDMAX,SUNARR(I),STMX)
0064  CALL MIN(KRTM,8,PSDMIN,SUNARR(I),STMN)
0065  HTMX=PSDMAX
0066  HTMN=PSDMIN
0067  TMZONE=TZARR(I)+1
0068  GO TO (401,402,403), TMZONE
0069  401 CALL PSUD01 (DTN,B,X,STMN,DL,TRARR(I,SAVMON),SUNARR(I))
0070  CALL PSUD02 (DTX,B,X,STMX,DL,TRARR(I,SAVMON),SUNARR(I))
0071  GO TO 501
0072  402 CALL PSUD03 (DTN,B,X,STMN,DL,TRARR(I,SAVMON),SUNARR(I))
0073  CALL PSUD04 (DTX,B,X,STMX,DL,TRARR(I,SAVMON),SUNARR(I))
0074  GO TO 501
0075  403 CALL PSUD05 (DTN,B,X,STMN,DL,TRARR(I,SAVMON),SUNARR(I))
0076  CALL PSUD06 (DTX,B,X,STMX,DL,TRARR(I,SAVMON),SUNARR(I))
0077  CALL MAXMIN(DMAX,DMIN,DTN,DTX,HTMX,HTMN)
      C PRINT THE DAY'S MAX, MIN AND PRECIP VALUES
0078  CALL OUT(ITA TN,SAVYR,SAVMON,SAVDAY,DMAX,DMIN,SUMPRE,BMAX,BMIN,
      C #PRE)
0079  IF (NDTAPE.EQ.1) GO TO 555
      C KK IS THE COUNTER FOR THE # OF MISSING TEMP OBSERVATIONS
0080  KK=0
0081  ITATN=STATN
0082  SAVYR=YEAR

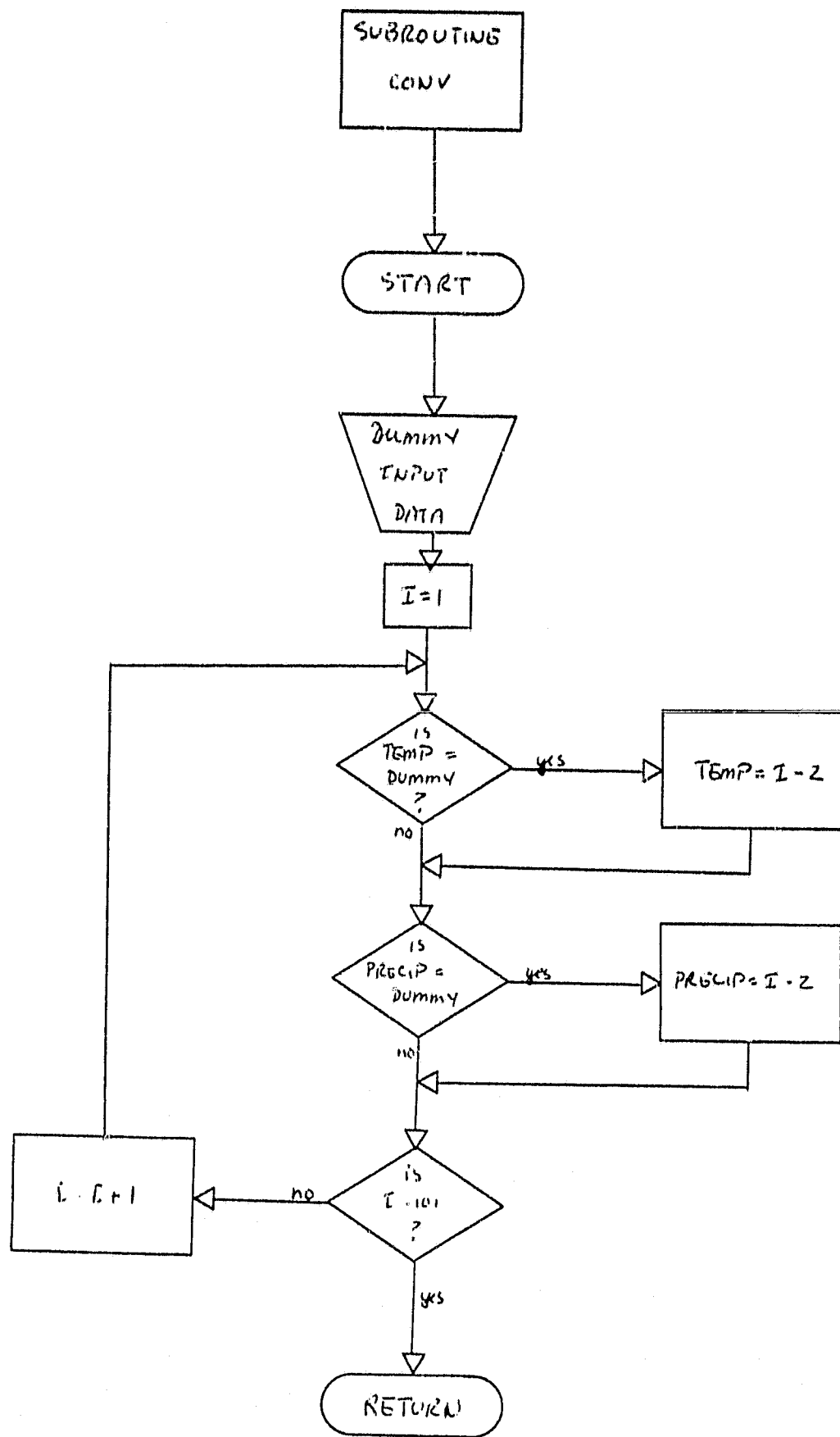
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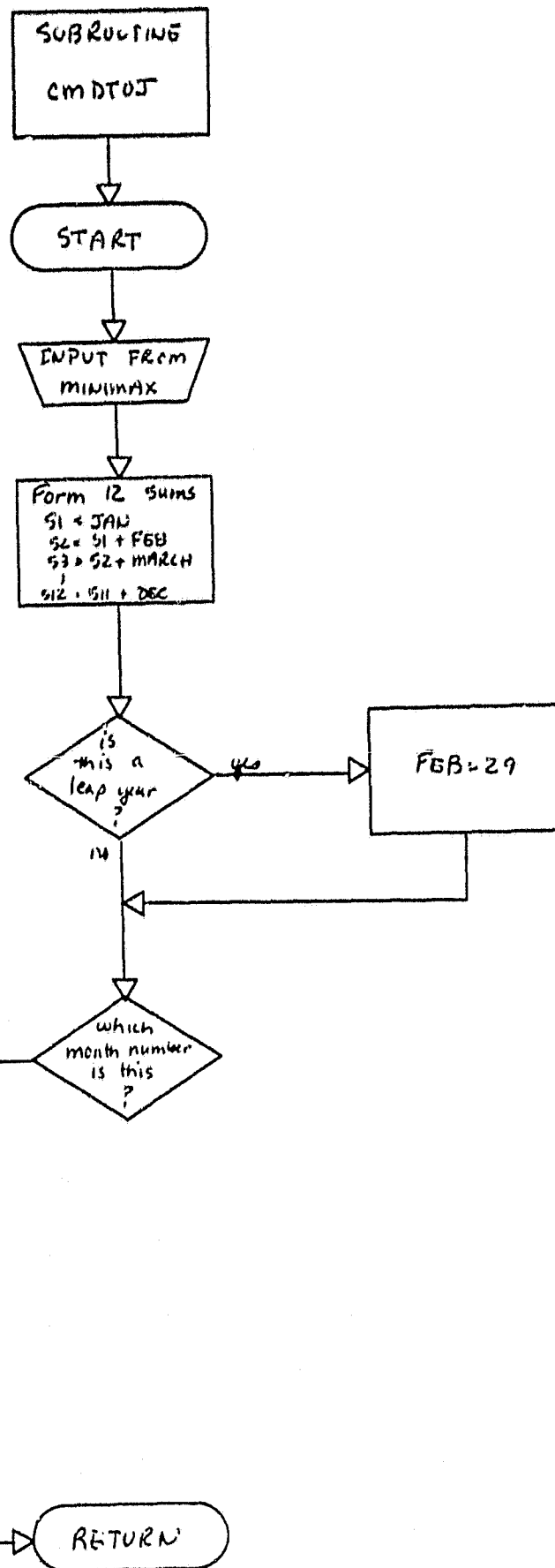
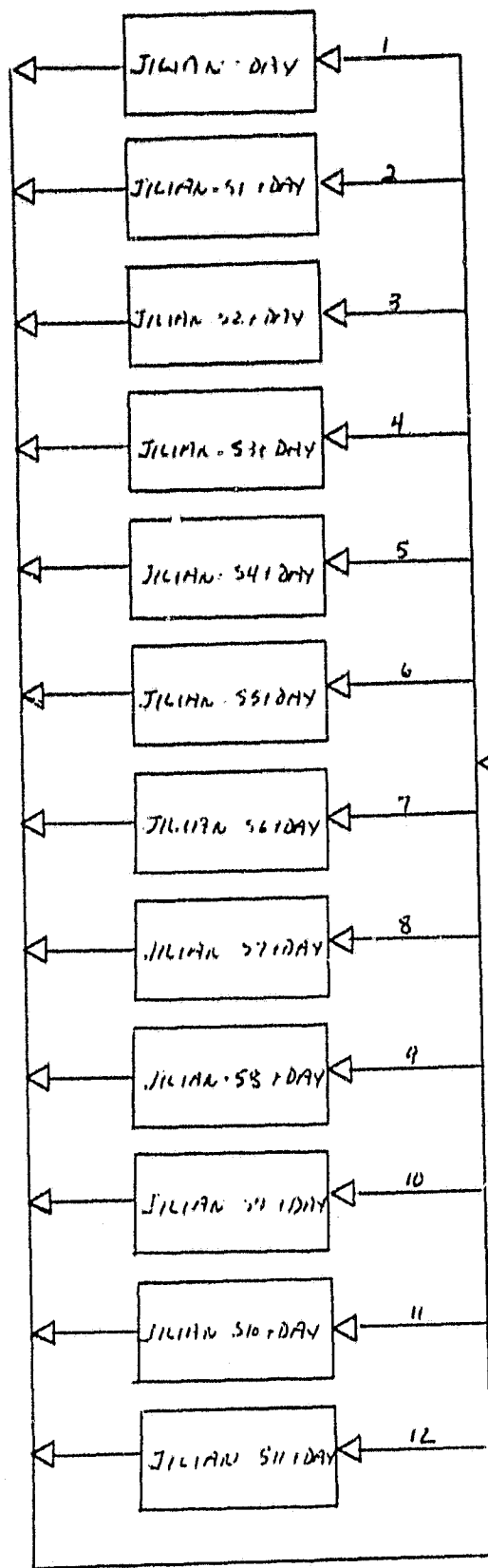
FORTRAN IV G1 RELEASE 2.0 MAIN DATE = 78021 10/31/40

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0083 SAVMON=MONTH
0084 SAVDAY=DAY
0085 SUMPRE=0.0
0086 ICOUNT = 0
C RE-INITIALIZING PRECIP ARRAY TO ZERO
0087 DO 14 J=1,8
0088 PPARR(J)=0.0
C RE-INITIALIZING TEMP ARRAY TO '9999.'
0089 DO 15 K=1,8
0090 KHRTEM(K)=9999.
0091 15 CONTINUE
C 'TM' IS DUMMY VARIABLE FOR TEMP
0092 16 TM=TEMP
0093 ICOUNT = ICOUNT + 1
C FOR BELOW ZERO TEMPS, 50 IS ADDED TO THE TEMP'S ABSOLUTE VALUE;
C THEREFORE, THE TEMP CODE MUST BE CONVERTED TO AN ACTUAL VALUE
0094 J=((HOUR/3)+1)
0095 K=((HOUR/3)+1)
0096 IF(TM+1.0)18,19,18
0097 IF(TM.GT.50.0)TM=50.0-TM
C TEMPS ARE IN CENTIGRADE AND MUST BE CONVERTED TO FAHRENHEIT
C FOR USE IN SUBROUTINES
0098 TM=(TM*1.8)+32.0
0099 KHRTEM(K)=TM
0100 GO TO 17
0101 19 KK=KK+1
C 'PPT' IS A DUMMY VARIABLE FOR PRECIP
0102 17 PPT=PRECIP
C TRANSLATING PRECIP CODES TO MEANINGFUL VALUES
0103 IF(PPT.GT.96.0)PPT=0.0
0104 IF((PPT.GT.90.0).AND.(PPT.LT.97.0))PPT=(0.1*(PPT-90.0))
0105 IF((PPT.GT.55.0).AND.(PPT.LT.91.0))PPT=(10.0*(PPT-50.0))
0106 PPARR(J)=PPT
0107 GO TO 9
0108 800 WRITE(6,900)KOUNT
0109 900 FORMAT(' NO WANTED STATN IN TAPE # ',I3)
0110 ENDFILE 20
0111 GO TO 1000
0112 555 WRITE(6,700)KOUNT
0113 700 FORMAT('0','DATA TRANSMISSION TO TAPE NO.','I3,' IS COMPLETED')
0114 ENDFILE 20
0115 1000 CONTINUE
0116 STOP
0117 END

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FORTRAN IV G1 RELEASE 2.0

(MCTGJ

DATE = 77067

13/67/25

SUBROUTINE CNTOJ(Y2,MONTH,DAY,JULIAN)
THIS PROGRAM IS DESIGNED TO CONVERT A CALENDAR MONTH AND DAY
TO JULIAN DAY
INT-G1R Y2,MONTH,DAY,JULIAN

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FEB=28

MAR=31

APRIL=30

MAY=31

JUNE=30

JULY=31

AUG=31

SEP=30

OCT=31

NOV=30

DEC=31

S1=JAN

S2=31+MAR

S3=52+MAR

S4=53+APRIL

S5=54+MAY

S6=55+JUNE

S7=56+JULY

S8=57+AUG

S9=57+SEPT

S10=57+OCT

S11=57+NOV

S12=57+DEC

IF (MOD(Y2,4).EQ.0)FEB=29

GO TO (1,2,3,4,5,6,7,8,9,10,11,12),MONTH

JULIAN=57

GO TO 100

JULIAN=51+DAY

GO TO 100

JULIAN=52+DAY

GO TO 100

JULIAN=53+DAY

GO TO 100

JULIAN=54+DAY

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JULIAN=55+DAY

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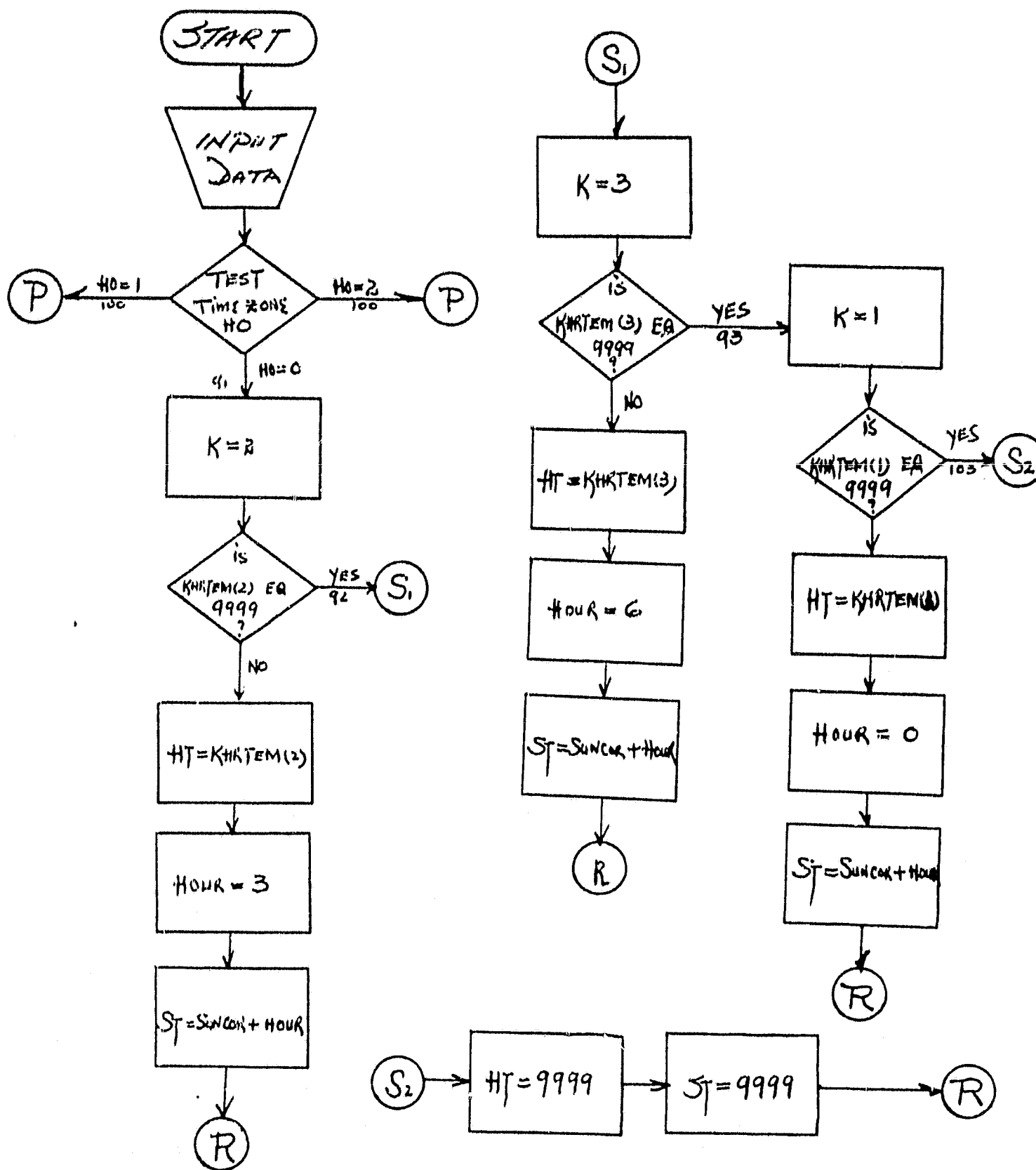
JULIAN=61+DAY

GO TO 100

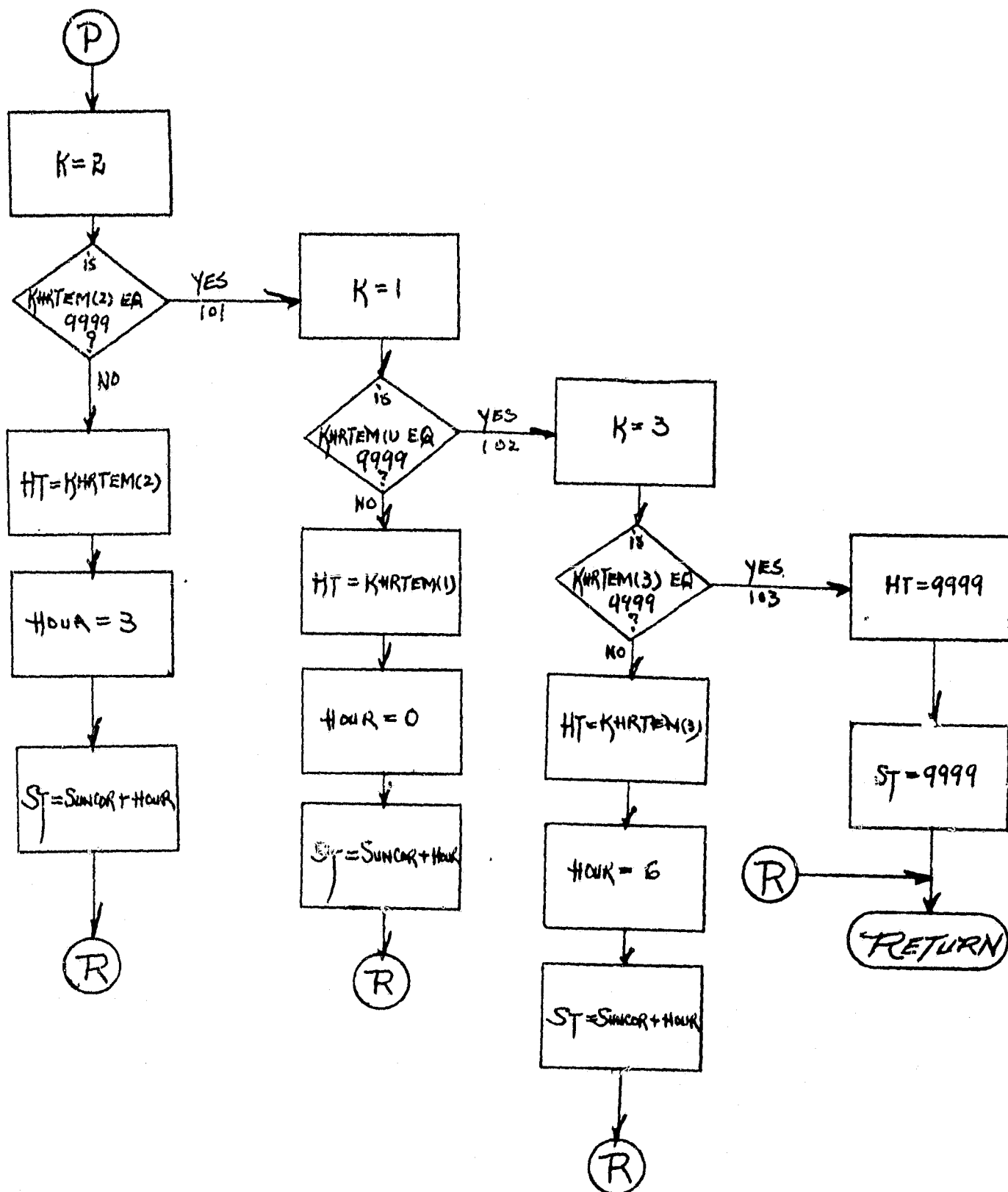
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Flowchart for the SUBROUTINE EST 1



ESI (CONTINUE)



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0001 SUBROUTINE EST1(HC,KHRTM,SUNCCR,HCUR,HT,ST)
C THIS SUBROUTINE IS USED TO FIND THE BEST POSSIBLE VALUE
C OF HCUR AND TWO PLE THE SUN TIME CORRECTION VARIABLE-ST,
C THE ST IS NEEDED FOR THE DTN ESTIMATION
      INTEGER HC
      REAL KHRTM(8)
      IF (HC-1) 91,100,100
0002 91 K=2
0003 C
0004 C
0005 C
0006 K=2 IMPLIES THAT THE 1ST CHOICE FOR HC=00
0007 IF (KHRTM(K).EQ.0.00000.) GO TO 92
0008 HT=KHRTM(K)
0009 HCUR=0.0
0010 ST = SUNCCR + HCUR
0011 RETURN
0012 92 K=3
0013 C
0014 C
0015 K=3 IMPLIES THAT THE 2ND CHOICE FOR HC=00
0016 IF (KHRTM(K).EQ.0.00000.) GO TO 93
0017 HT=KHRTM(K)
0018 HCUR=0.0
0019 ST = SUNCCR + HCUR
0020 RETURN
0021 93 K=1
0022 C
0023 C
0024 TAKE K=1 AS THE 3RD CHOICE FOR HC=00
0025 K=1 IMPLIES THAT THE HOUR IS 00 (MIDNIGHT)
0026 IF (KHRTM(K).EQ.0.00000.) GO TO 103
0027 HT=KHRTM(K)
0028 HCUR=0.0
0029 ST = SUNCCR + HCUR
0030 RETURN
0031 100 K=2
0032 C
0033 C
0034 TAKE K=2 AS THE 1ST CHOICE FOR HC=01 OR HC=02
0035 K=2 IMPLIES THAT THE HOUR IS 03 (3AM)
0036 IF (KHRTM(K).EQ.0.00000.) GO TO 101
0037 HT=KHRTM(K)
0038 HCUR=0.0
0039 ST = SUNCCR + HCUR
0040 RETURN
0041 101 K=1
0042 C
0043 C
0044 TAKE K=1 AS THE 2ND CHOICE FOR HC=01 OR HC=02
0045 K=1 IMPLIES THAT THE HOUR IS 00 (MIDNIGHT)
0046 IF (KHRTM(K).EQ.0.00000.) GO TO 102
0047 HT=KHRTM(K)
0048 HCUR=0.0
0049 ST = SUNCCR + HCUR
0050 RETURN
0051 102 K=3
0052 C
0053 C
0054 K=3 IMPLIES THAT THE 3RD CHOICE FOR HC=01 OR HC=02
0055 K=3 IMPLIES THAT THE HOUR IS 00 (3AM)
0056 IF (KHRTM(K).EQ.0.00000.) GO TO 103
0057 HT=KHRTM(K)
0058 HCUR=0.0
0059 ST = SUNCCR + HCUR
0060 RETURN
0061 103 HT=0.0
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FORTFAN IV G1 RELEASE 2.0

0042
0043
0044

ST=SS09.
RETURN
END

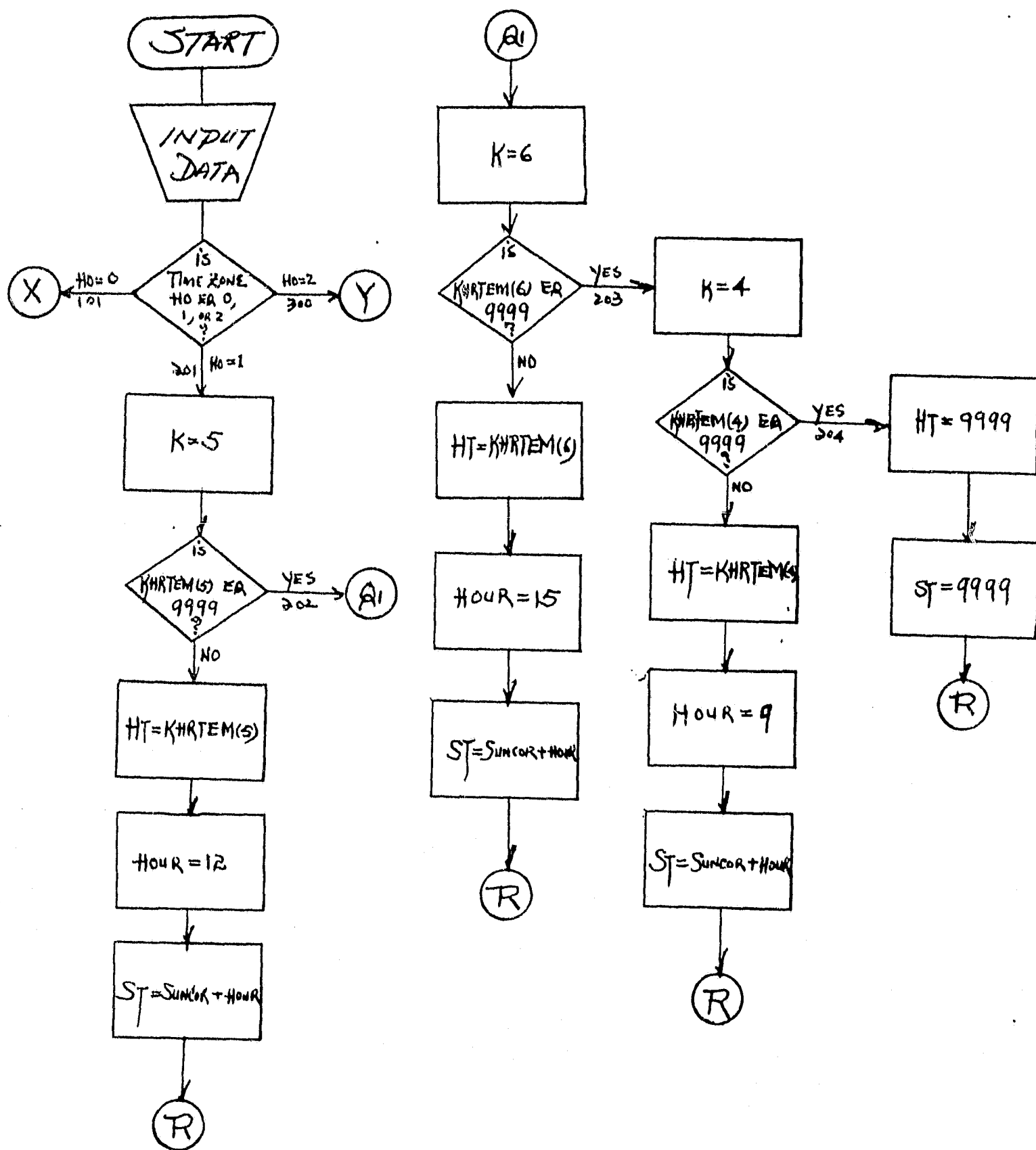
EST1

DATE = 77087

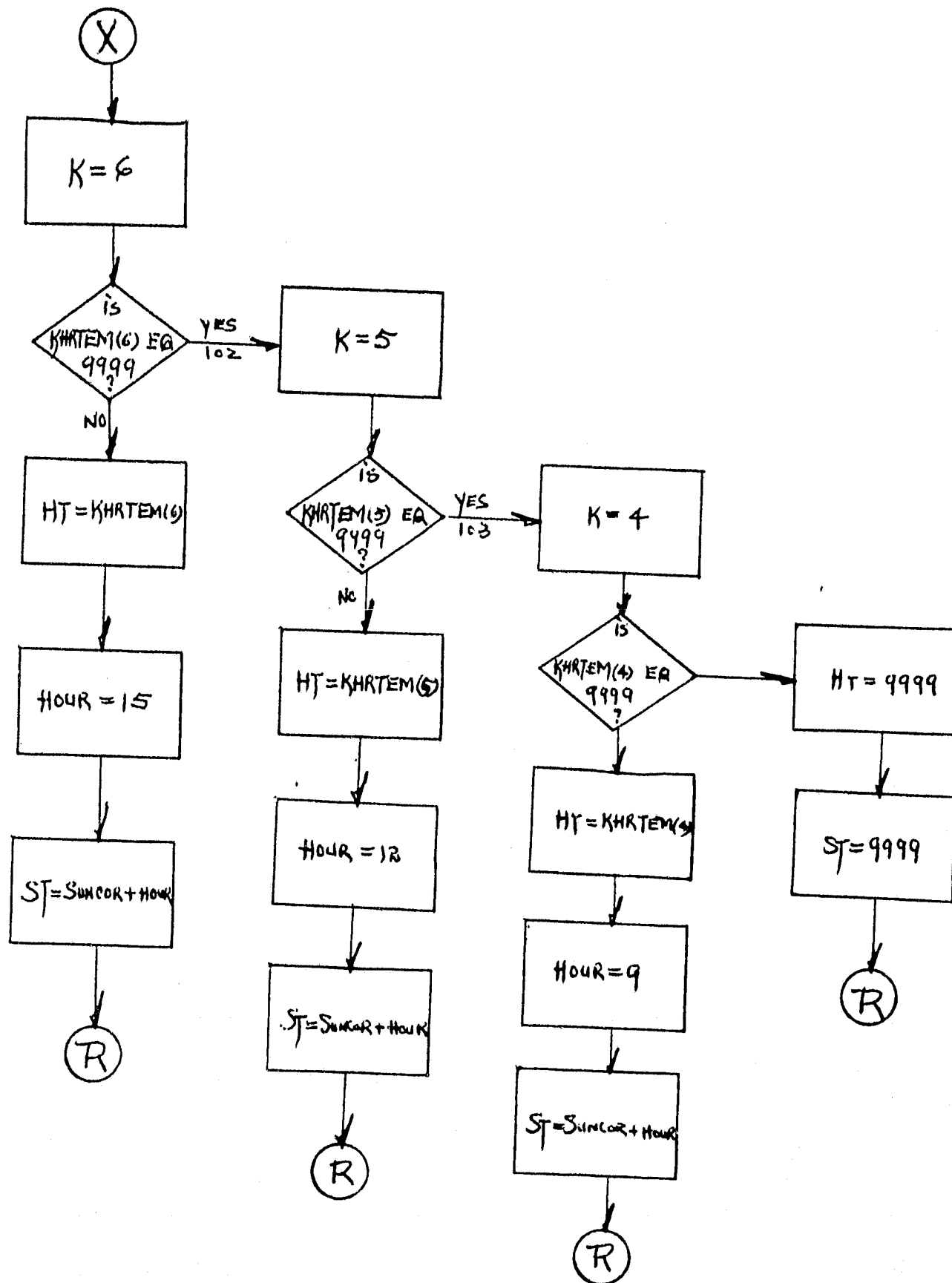
18/47/25

C-15

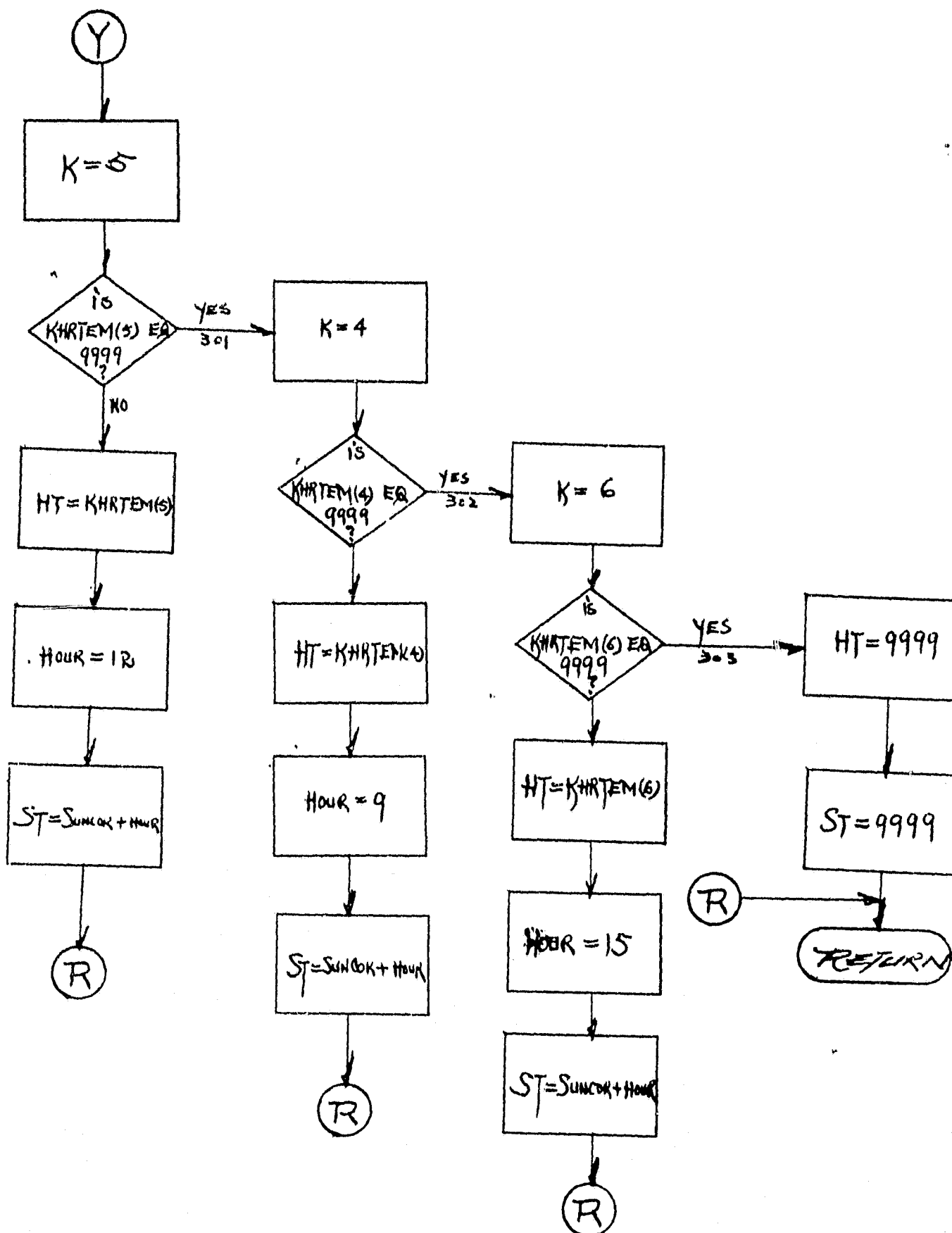
FLOWCHART FOR THE SUBROUTINE ESTR



ESTR (CONTINUE)



ESTR (CONTINUE)



0001 SUBROUTINE EST2(HC,KHPTCM,SUNCOR,HCUR,HT,ST)
C THIS SUBROUTINE IS USED TO FIND THE BEST POSSIBLE VALUE OF HCUR
C AND TRIP FOR THE SUN TIME CORRECTION VARIABLE,ST, WHICH IS
C RELATED FOR THE PTX ESTIMATION
C INT=0000 HC
C EVAL KHPTCM(0)
C IF(HC-1)101,201,300

101 K=0
C TAKE K=0 AS THE 1ST CHOICE FOR HC=00
C K=0 IMPLIES THAT THE HOUR IS 15 (3PM)
C IF(KHPTCM(K).EQ.9999.) GO TO 102
C HT=KHPTCM(K)
C HOUR=15.0
C ST=SUNCOR + HCUR
C RETURN
C

102 K=1
C TAKE K=1 AS THE 2ND CHOICE FOR HC=00
C K=1 IMPLIES THAT THE HOUR IS 12 (NOON)
C IF(KHPTCM(K).EQ.9999.) GO TO 103
C HT=KHPTCM(K)
C HOUR=12.0
C ST=SUNCOR + HCUR
C RETURN
C

103 K=4
C TAKE K=4 AS THE 3RD CHOICE FOR HC=00
C K=4 IMPLIES THAT THE HOUR IS 09 (9AM)
C IF(KHPTCM(K).EQ.9999.) GO TO 104
C HT=KHPTCM(K)
C HOUR=09.0
C ST=SUNCOR + HCUR
C RETURN
C

104 HT=9999.
C ST=9999.
C GO TO 400
C

201 K=5
C TAKE K=5 AS THE 1ST CHOICE FOR HC=01
C K=5 IMPLIES THAT THE HOUR IS 12 (NOON)
C IF(KHPTCM(K).EQ.9999.) GO TO 202
C HT=KHPTCM(K)
C HOUR=12.0
C ST=SUNCOR+HOUR
C RETURN
C

202 K=1
C TAKE K=1 AS THE 2ND CHOICE FOR HC=01
C K=1 IMPLIES THAT THE HOUR IS 15 (3 PM)
C IF (KHPTCM(K).EQ.9999) GO TO 203
C HT=KHPTCM(K)
C HOUR=15.0
C ST=SUNCOR+HOUR
C RETURN
C

203 K=4
C TAKE K=4 AS THE 3RD CHOICE FOR HC=01
C K=4 IMPLIES THAT THE HOUR IS 09 (9 AM)
C IF(KHPTCM(K).EQ.9999.) GO TO 204
C HT=KHPTCM(K)
C HOUR=09.0
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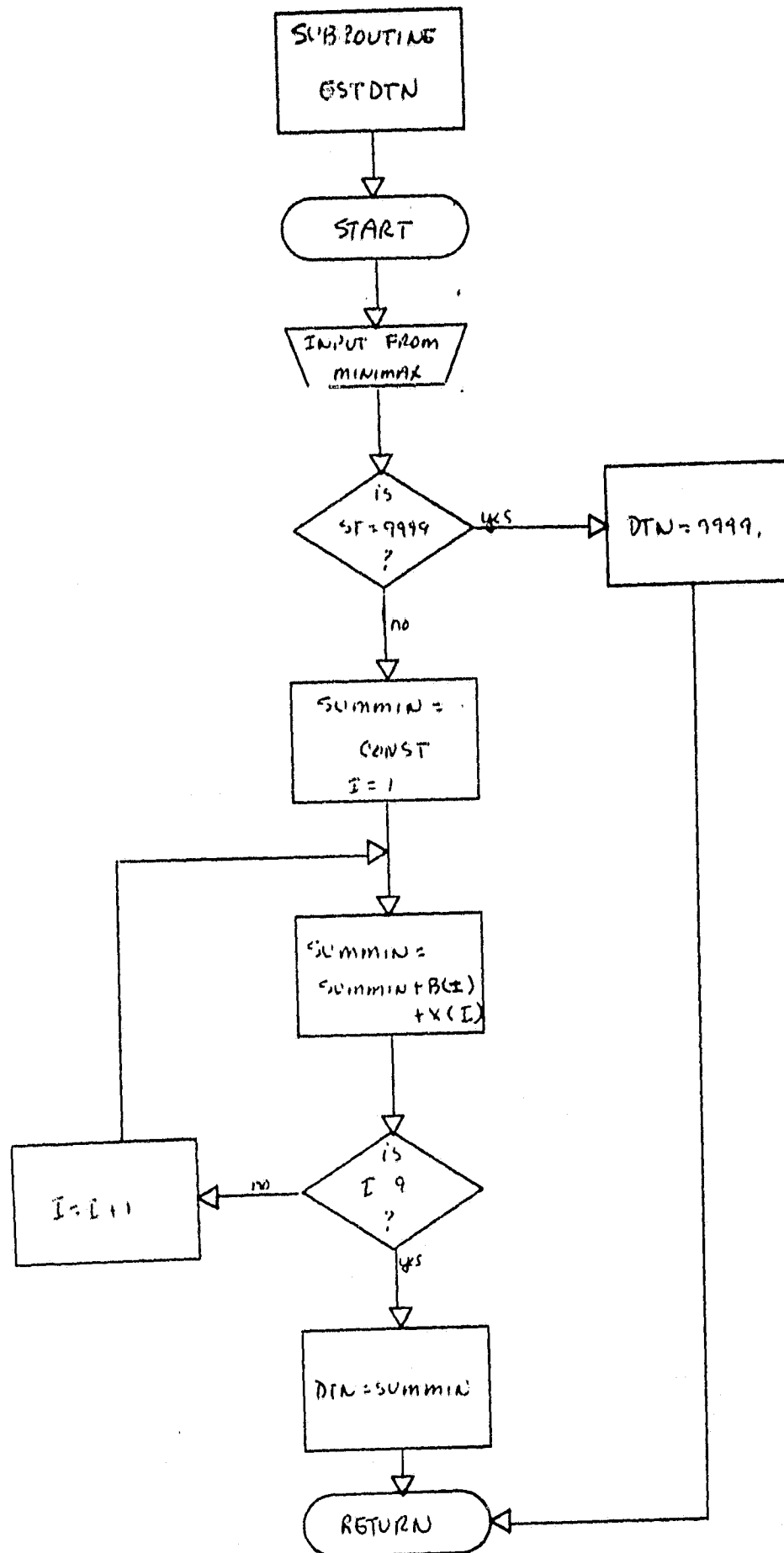
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```

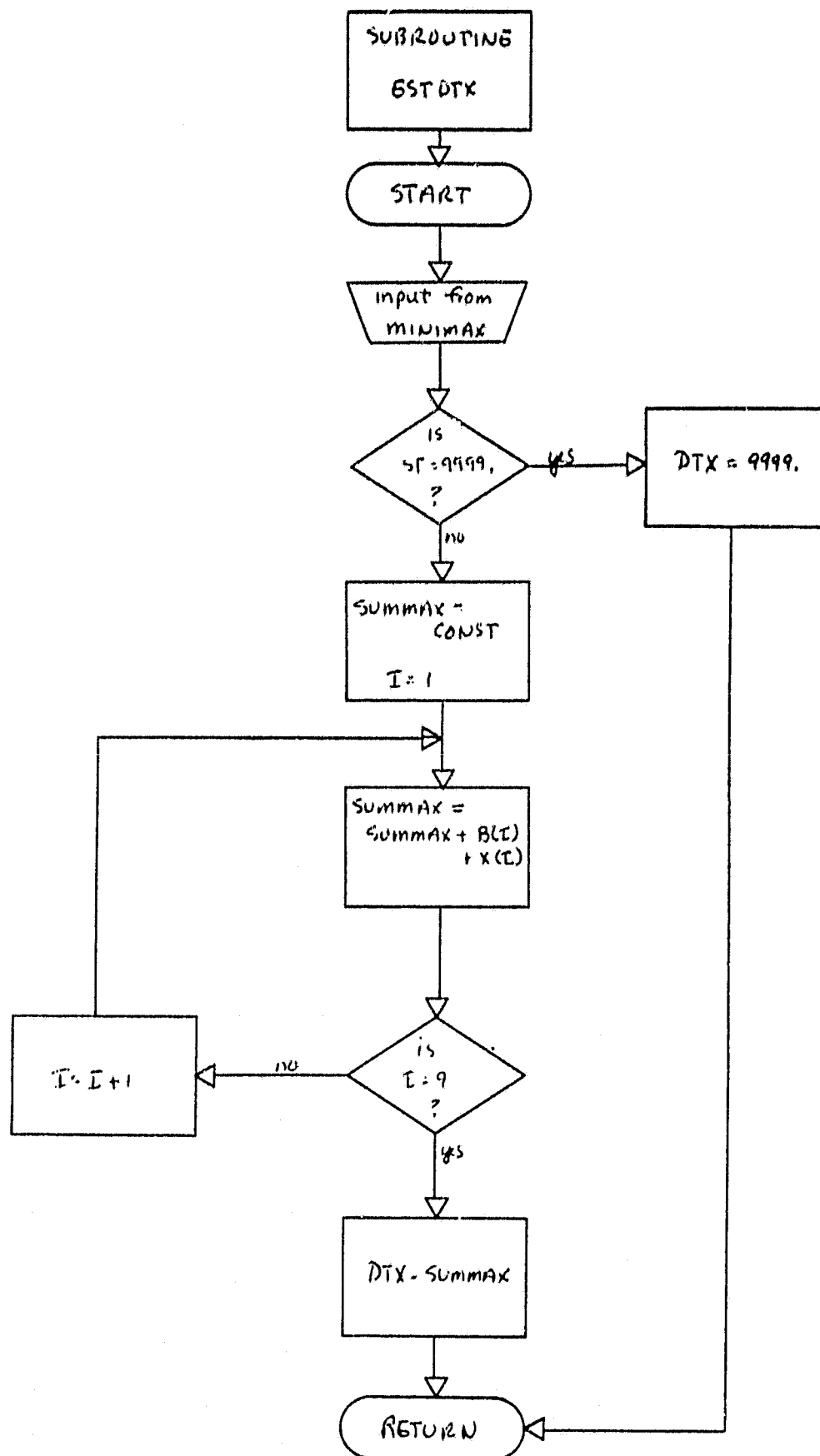
0042 STE=SUMCOR +HOUR
0043 RETURN
0044 H=H0000.
0045 STE=H0000.
0046 GO TO 400
0047
300 K=5
C TAKE K=5 AS THE 1ST CHOICE FOR HC=02
C KEE IMPLIES THAT THE HOUR IS 12 (NOON)
IF (KHESTER(K).EQ.0000.) GO TO 301
H=KHESTER(K)
HOUR=12.
STE=SUMCOR +HOUR
RETURN
301 K=4
C TAKE K=4 AS THE 2ND CHOICE FOR HC=02
C KEE IMPLIES THAT THE HOUR IS 09 (9 AM)
IF (KHESTER(K).EQ.0000.) GO TO 302
H=KHESTER(K)
HOUR=09.
STE=SUMCOR +HOUR
RETURN
302 K=3
C TAKE K=3 AS THE 3RD CHOICE FOR HC=02
C KEE IMPLIES THAT THE HOUR IS 03 (3 PM)
IF (KHESTER(K).EQ.0000.) GO TO 303
H=KHESTER(K)
HOUR=03.
STE=SUMCOR +HOUR
RETURN
303 H=H0000.
STE=H0000.
RETURN
400
END
    
```



```

FC-TRAN IV G1 RELEASE 2.0          C-22
0001          SUBROUTINE FSTDTM(LIN,B,X,ST,DL,TR)
          IF (LIN.GT.10) THEN PRINT *, 'LINES 1-10 ONLY'
          ESTIMATE THE CORRELATION FACTOR FOR THE DAILY MIN TEM
          REAL B(4),X(50) GO TO 300
          IF (ST.EQ.0.5) GO TO 300
          CONST=7.712
          B(1)=.425139
          B(2)=.425059
          B(3)=.013818
          B(4)=.0791654
          B(5)=.0167218
          B(6)=.078457
          B(7)=.055075
          B(8)=.022133
          B(9)=.004224
          X(1)=ST
          X(2)=ST*ST
          X(3)=DL*DL
          X(4)=ST*DL
          X(5)=ST*TR
          SUMX=CONST
          DO I=1,50
            SUMX=SUMX+B(I)*X(I)
          CONTINUE
          DTR=SUMX
          GO TO 400
          DTR=SUMX
          DTR=SUMX
          RETURN
          END
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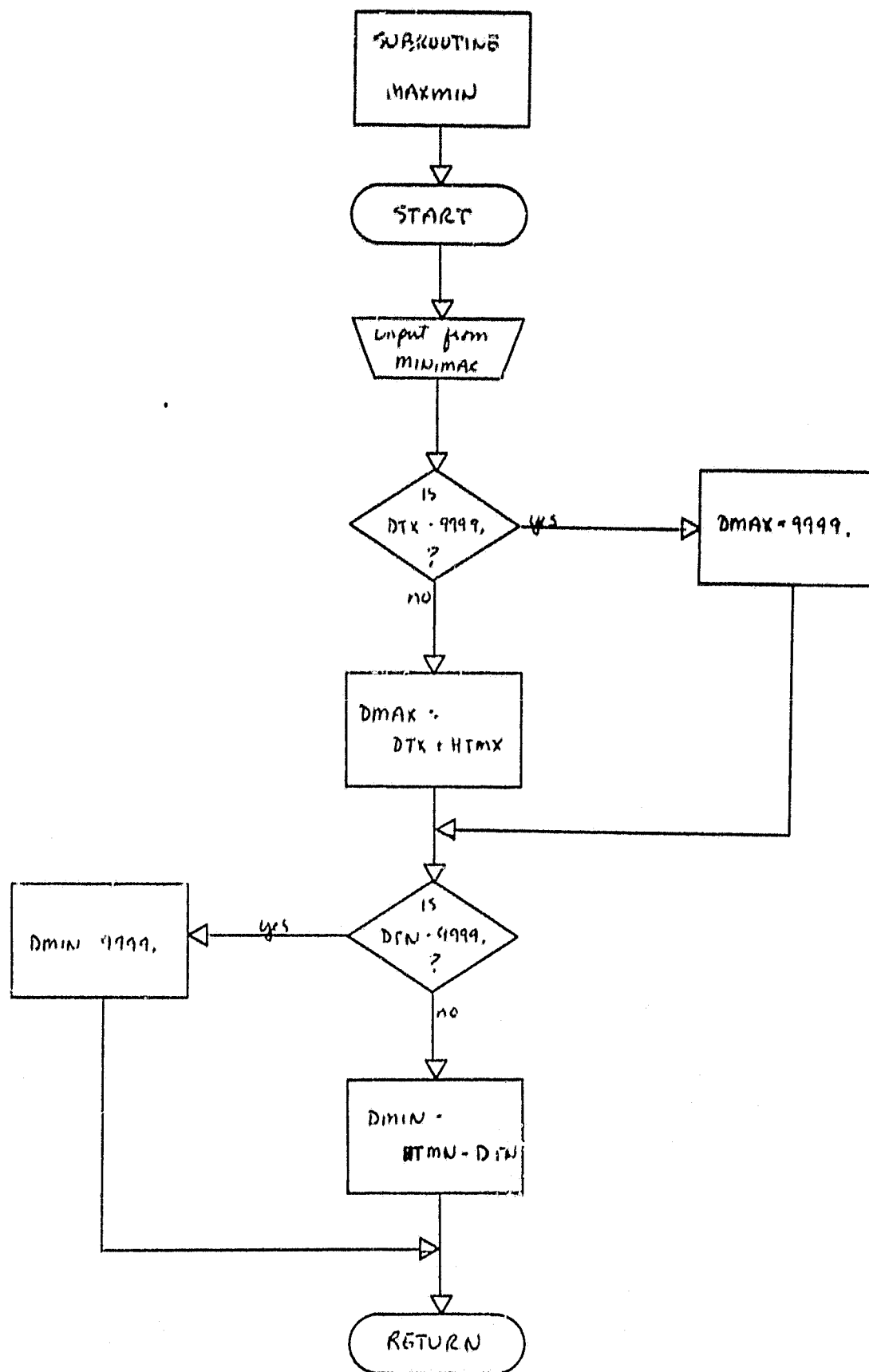


FORTRAN IV G1 RELEASE 2.0 'STPTX DATE = 77087 18/47/25

```
0001 SUBROUTINE ESTPTX (CTX,B,X,ST,DL,TA)
      IF (X(1) > 1.0) THEN
        PRINT *, 'X(1) > 1.0, THIS SUBROUTINE
        ESTIMATES THE CORRELATION FACTOR FOR THE DAILY MAX TEMP
        FILE, X(1), X(2)
      IF (ST < 0.0) GO TO 300
      CONST=77.252
      P(1)=0.054
      P(2)=-1.5332e5
      P(3)=0.4252e7
      P(4)=0.36e9
      P(5)=0.253422
      P(6)=-0.02112
      X(1)=ST
      X(2)=DL
      X(3)=TA
      X(4)=CT
      X(5)=DL
      X(6)=TA
      SUMMAX=0.0
      DO 200 I=1,6
        SUMMAX=SUMMAX+X(I)*X(I)
      CONTINUE
      DTX=SUMMAX
      GO TO 400
300 DTX=0.0
400 RETURN
      END
```

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FORTRAN IV GI RELEASE

0001

MAXMIN

DATE = 77087

18/47/25

SUBROUTINE MAXMIN(DMAX,DMIN,DTX,DTN,HTVX,HTVN)
THIS SUBROUTINE IS USED TO CALCULATE THE ESTIMATED DAILY
MAXIMUM AND MINIMUM TEMPERATURES
IF(DTX+10.2537.) GO TO 100
DVA=DTX+HTVX

GO TO 200

100 DMAX=9999.

200 IF(DTA.LC.9999.) GO TO 300

DV=HTVN-DTN

GO TO 300

300 DMIN=9999.

500 RETURN

END

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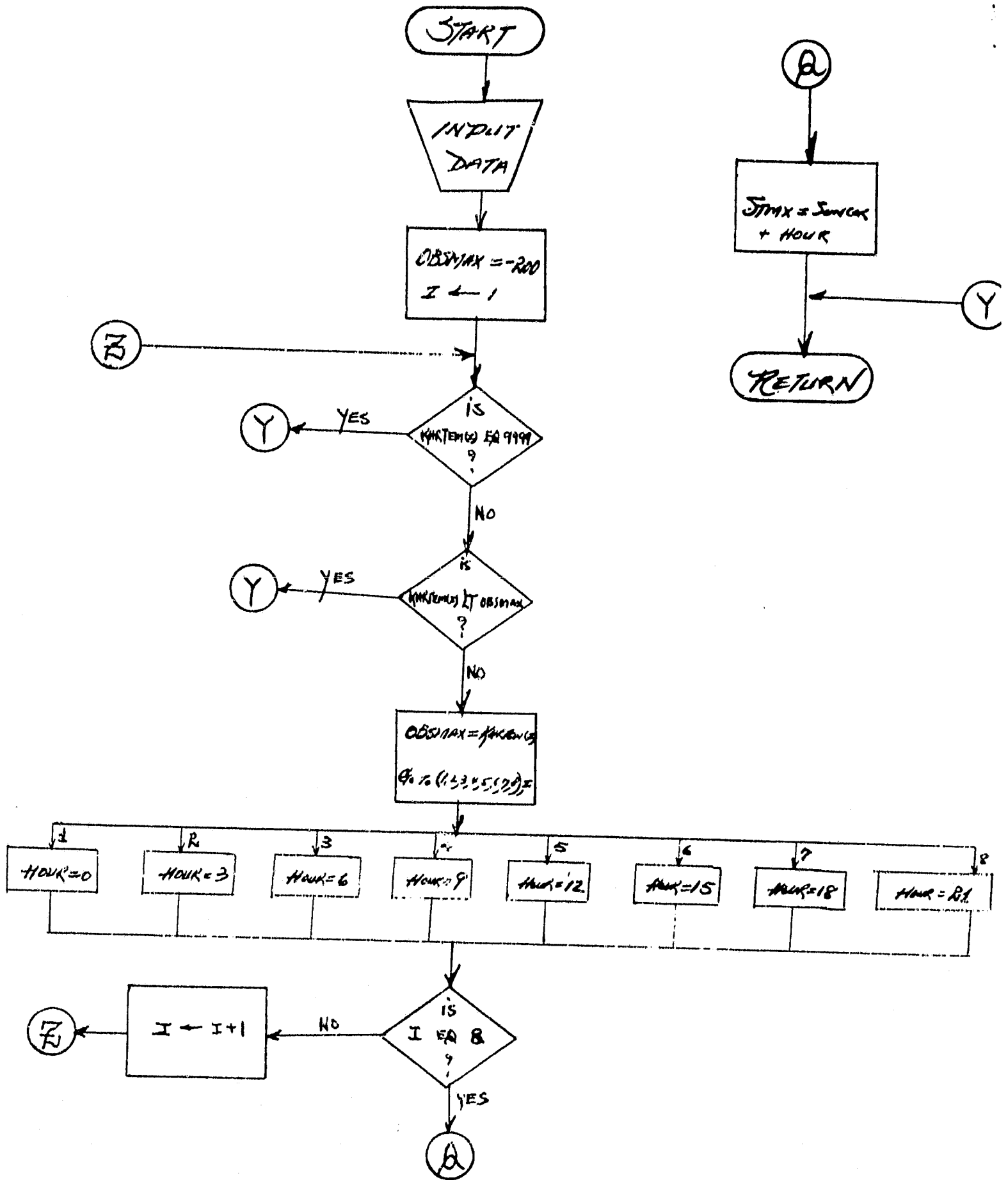
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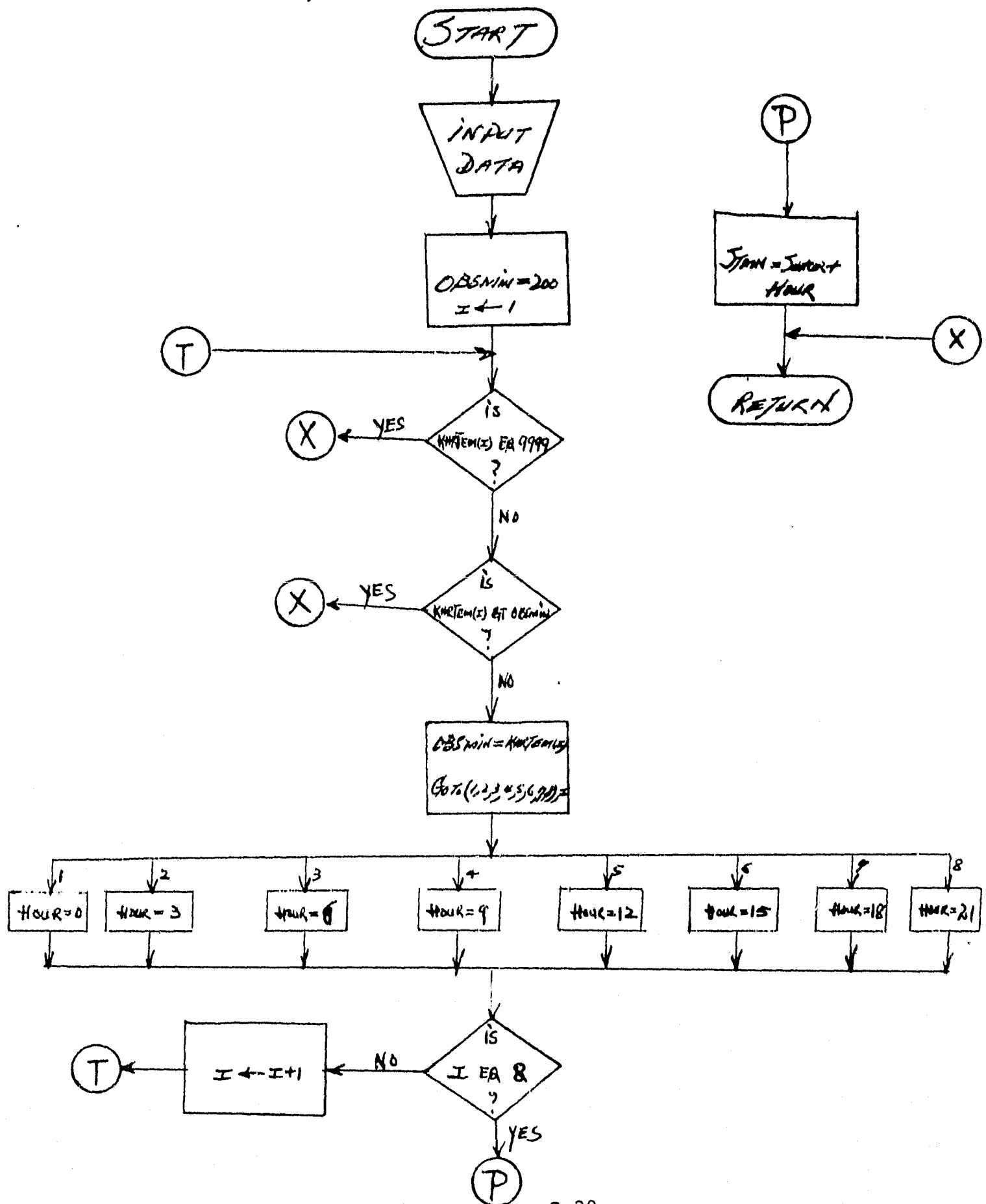
Flowchart for the SUBROUTINE MAX



```

0001 SUBROUTINE MAX(KHITEM,K,GRSMAX,SUNCOL,STMX)
0002 THIS SUBROUTINE CHOOSES THE HIGHEST OF THE EIGHT OBSERVATIONS
0003 AL KHITEM(K)
0004 GRSMAX=200
0005 DO 200 I=1,K
0006 IF(KHITEM(I).EQ.200.) GO TO 200
0007 IF(KHITEM(I).LT.GRSMAX) GO TO 200
0008 GRSMAX=KHITEM(I)
0009 GO TO (1,2,3,4,5,6,7,8),I
0010 1 PRUNE
0011 2 PRUNE
0012 3 PRUNE
0013 4 PRUNE
0014 5 PRUNE
0015 6 PRUNE
0016 7 PRUNE
0017 8 PRUNE
0018 9 PRUNE
0019 10 PRUNE
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Flowchart for the SUBROUTINE MIN



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SUBROUTINE NIP(KHATEM,K,CMSH IN,SUNCOR,STMR)
THIS SUBROUTINE CHANGES THE LOWEST OF THE EIGHT OBSERVATIONS
EQUAL KHATEM(K)
GRSMIN=200
DO 200 I=1,K
IF (KHATEM(I).GT.CMSH IN) GO TO 200
IF (KHATEM(I).GT.CLSMIN) CC TC 200
GRSMIN=KHATEM(I)
GO TO (1,2,3,4,5,6,7,8),I
1 HOUR=1
GO TO 200
2 HOUR=2
GO TO 200
3 HOUR=3
CC TC 200
4 HOUR=4
GO TO 200
5 HOUR=5
GO TO 200
6 HOUR=6
GO TO 200
7 HOUR=7
GO TO 200
8 HOUR=8
200 CONTINUE
STMR=SUNCOR+HOUR
P=TIME
END
    
```

FUNCTIONAL
SUBPROGRAM
DLNGTH(XLAT, DATE)

START

$R = 0.0174532925$
 $DAY = DATE$

$EPH =$
 $23.5 + \sin(0.9863 \times$
 $(DAY - 90) \times R)$

$COH =$
 $-\tan(XLAT \times R)$
 $+ (\tan(EPH \times R))$

$DLNGTH =$
 $\arccos(COH)$
 $\times 7.6408789$

RETURN

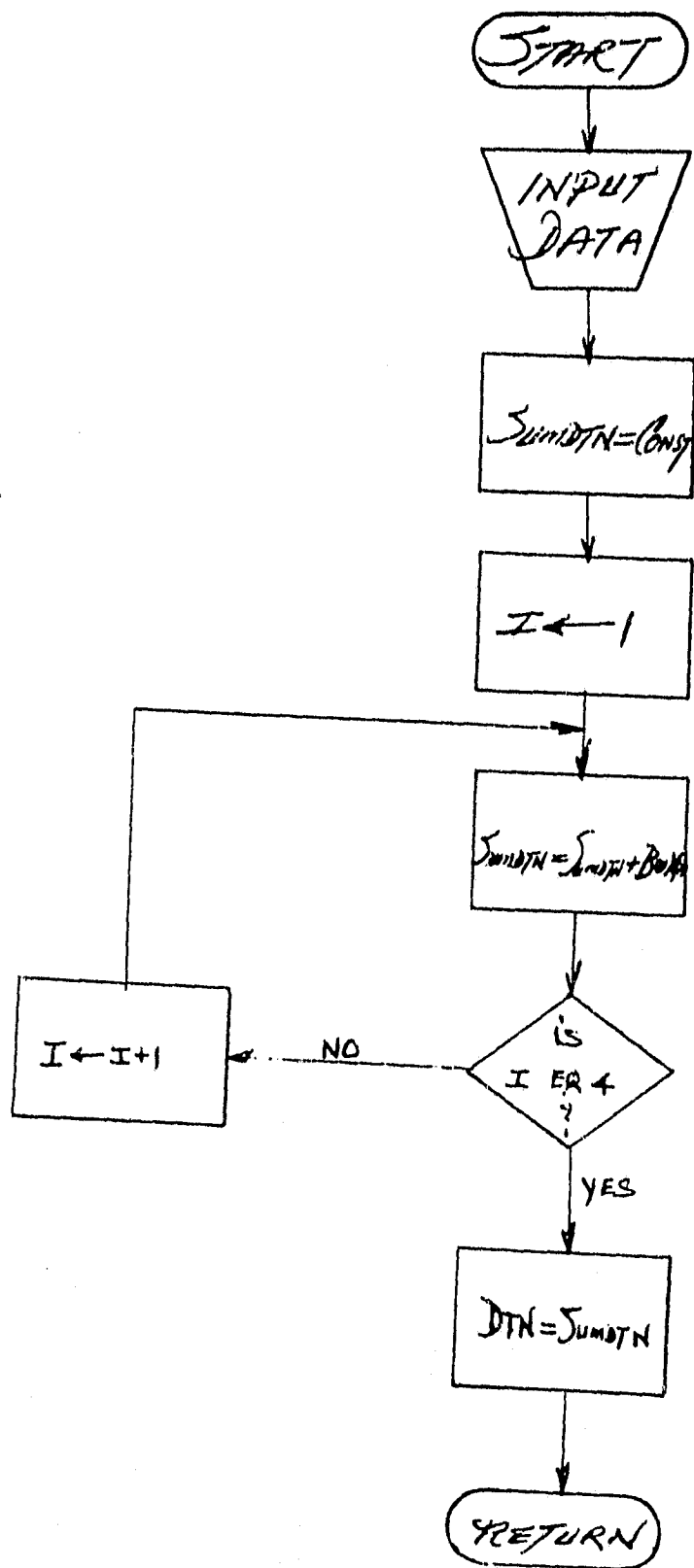
FORTRAN IV G1 RELEASE 2.0 LENGTH DATE = 77037 18/27/25

```
0001      REAL FUNCTION LENGTH(XLAT,DATE)
0002      THIS FUNCTIONAL SUBROUTINE IS DESIGNED TO CALCULATE THE
0003      DAYLENGTH OF EACH DAY
0004      REAL XLAT, DAY, LPP, CCH
0005      TIME=DATE
0006      K=0.17432525
0007      DAY=DATE
0008      LPP=23.5751N(C.4823*(DAY-80.0)*R)
0009      CCH=ATAN(XLAT)*ATAN(EPH+E)
0010      LENGTH=AFCS(CCH)*7.6408757
0011      RETURN
0012      END
```

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Flowchart for the Subroutine PSUD01



12/47/25

DATE = 77087

PSUDCI

PORTFAN IV GI REL-AS- 2.0

SUBROUTINE PSUDCI (CTN,B,X,STMN,DL,TR,SC)
THIS SUBROUTINE PSUDCI IS USED TO ESTIMATE THE ETN FOR THE
STATIONS LOCATED AT THE TIME ZONE H0=00

```

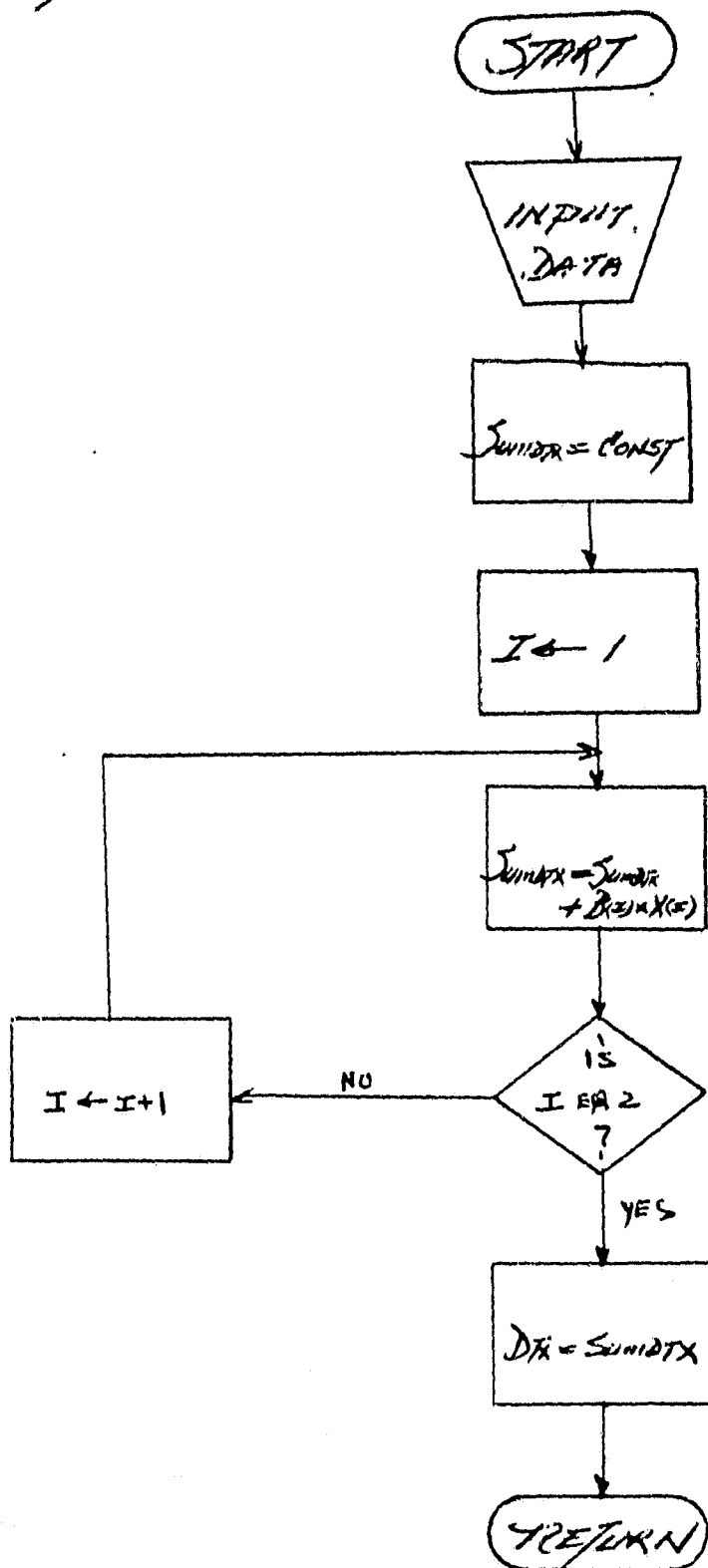
0001  REAL(8) X(400)
0002  CONST=11.552963
0003  B(1)=0.503615
0004  B(2)=-1.472956
0005  B(3)=0.045556
0006  B(4)=0.006658
0007  X(1)=SC
0008  X(2)=DL
0009  X(3)=DL-DL
0010  X(4)=DL-TR
0011  SUMDTN=CONST
0012  DO 200 I=1,4
0013  SUMDTN=SUMDTN+X(I)
0014  CONTINUE
0015  ETN=SUMDTN
0016  RETURN
0017  END
0018

```

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FLOWCHART FOR THE SUBROUTINE PSUDOR

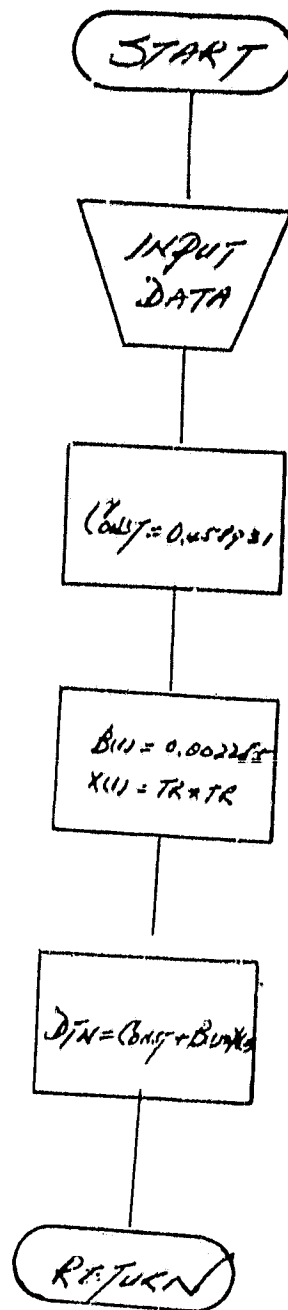


```

FORTRAN IV G1  RELEASE 2.0  DATE = 77047  18/47/25
0001      SUBROUTINE PSUDG2(DTX,P,X,STMX,DL,TR,SC)
0002      THIS SUBROUTINE PSUDG2 IS USED TO ESTIMATE THE DTX FOR THE
0003      STATIONS LOCATED AT THE TIME ZONE P)=CC
0004      REAL P(57),X(SC)
0005      COMMON /C61B11
0006      P(1)=C.400010
0007      P(2)=C.003195
0008      X(1)=SC
0009      X(2)=DL*TR
0010      SUMDTX=CONST
0011      DO 200 I=1,2
0012          SUMDTX=SUMDTX+P(I)*X(I)
0013      200 CONTINUE
0014      DTX=SUMDTX
0015      RETURN
0016      END

```

Flowchart for the Subtracting Pseudos



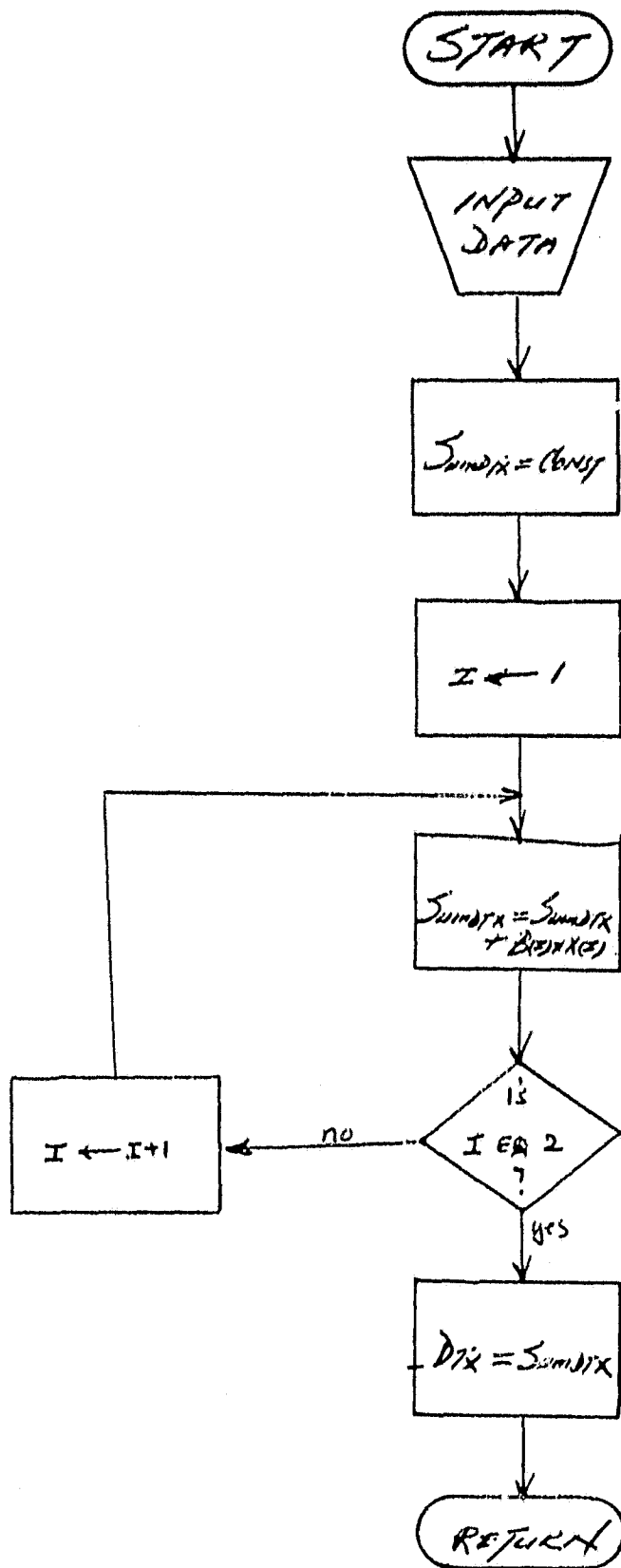
```

PROGRAM IV GI 7.1.43-2.0
      PSUEC3
      DATE = 77087
      13/47/25

      SUBROUTINE PSUEG3(CTR,J,X,CTMX,OL,TR,SC)
      THIS SUBROUTINE PSUEG3 IS USED TO ESTIMATE THE GTN FOR THE
      STATISTICS LOCATED AT THE TIME ZONE W9=91
      REAL B(SC),X(50)
      CONST=0.45E-31
      B(1)=C.CC2285
      X(1)=TR*TP
      DTN=CONST+H(1)*X(1)
      RETURN
      END

```

Flowchart for the Subroutine Pseudocode



18/47/25

DATE = 77097

PSUDC4

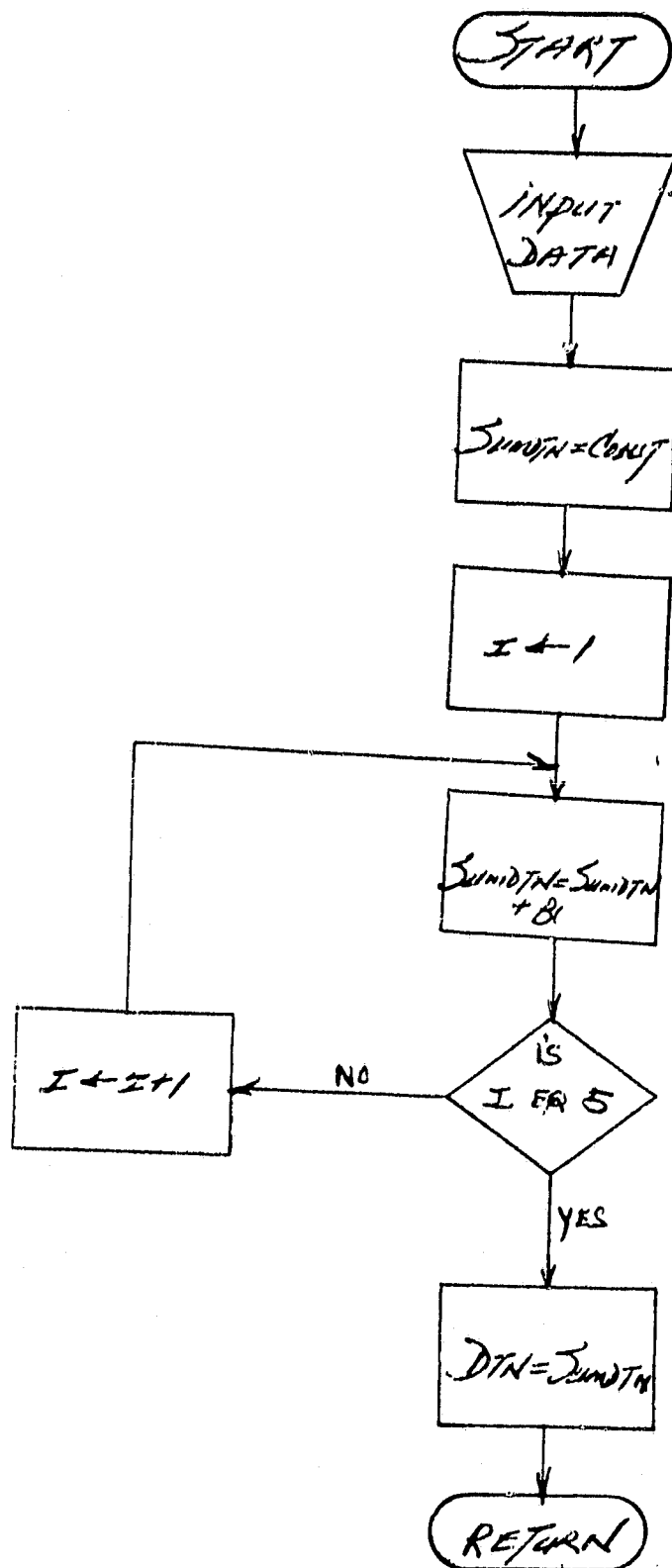
FORTRAN IV G1 RELEASE 2.0

```
0001 SUBROUTINE PSUDC4(DTX,3,X,STMX,OL,TR,SC)
      C THIS SUBROUTINE PSUDC4 IS USED TO ESTIMATE THE DTX FOR THE
      C STATIONS LOCATED AT THE FIVE ZONE P)=1
      REAL R(SC),X(SC)
      CCNST=1.161802
      B(1)=C.631554
      B(2)=C.631536
      X(1)=SC
      X(2)=OL+TR
      SUMDTX=CCNST
      DO 200 I=1,2
      SUMDTX=SUMDTX+B(I)*X(I)
200 CONTINUE
      DTX=SUMDTX
      RETURN
      END
```

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FORTRAN PAGE 10
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Flowchart for the Subroutine Pseudo



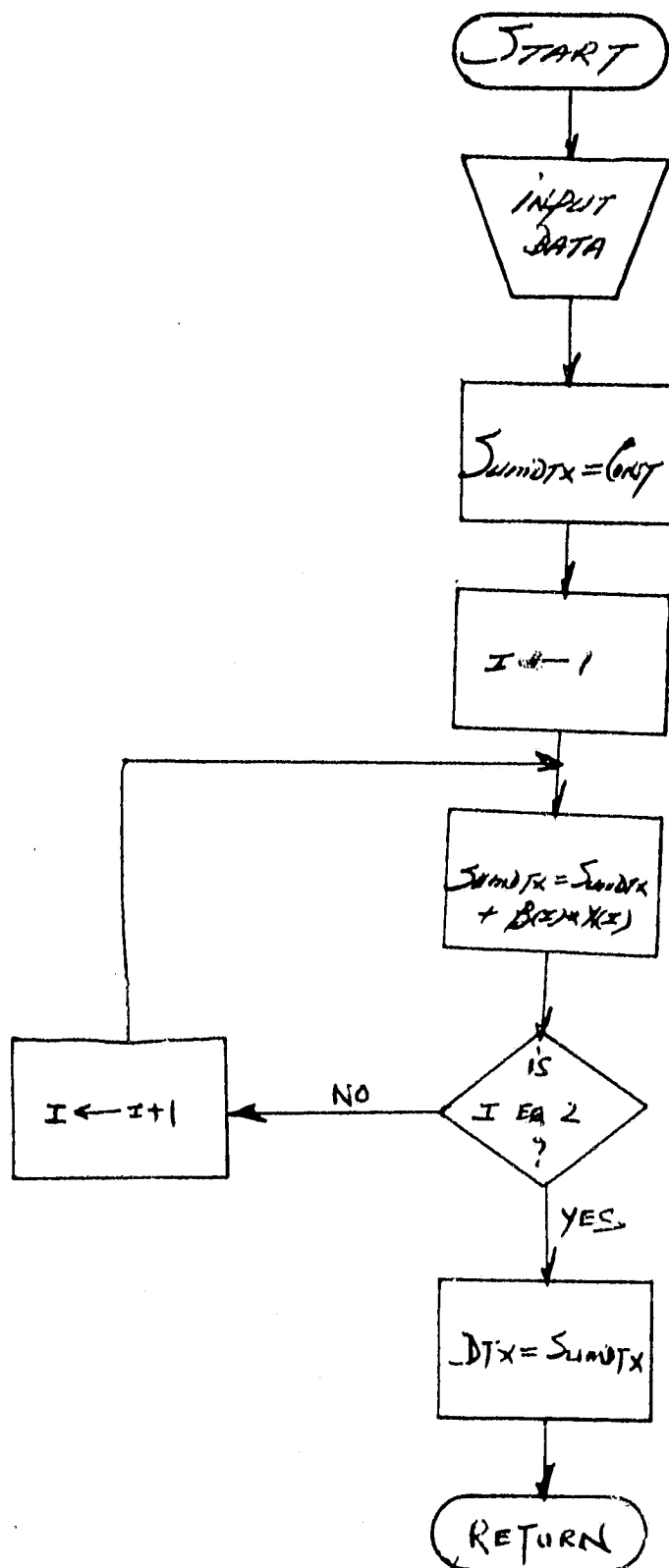
0001

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USUOUS
SUBROUTINE PSUDG (DTN,P,X,STM,TF,SC)
THIS SUBROUTINE PSUDG IS USED TO ESTIMATE THE DTN FOR THE
STATIONS LOCATED AT THE TIME ZONE W9=02
REAL A(50),X(50)
CONST=-2.663513
B(1)=C.32277
B(2)=-C.457527
B(3)=C.52322
B(4)=C.114372
B(5)=-C.027771
X(1)=SC
X(2)=DL
X(3)=TF
X(4)=DL*DL
X(5)=TF*TF
SUMDTN=CONST
DO 200 I=1,N
SUMDTN=SUMDTN+B(I)*X(I)
200 CONTINUE
DTN=SUMDTN
RETURN
END

FLOWCHART FOR THE SUBROUTINE PSEUDO



18/47/25

DATE = 77087

POLDO

FULTAN IV 61 REL-10 2.0

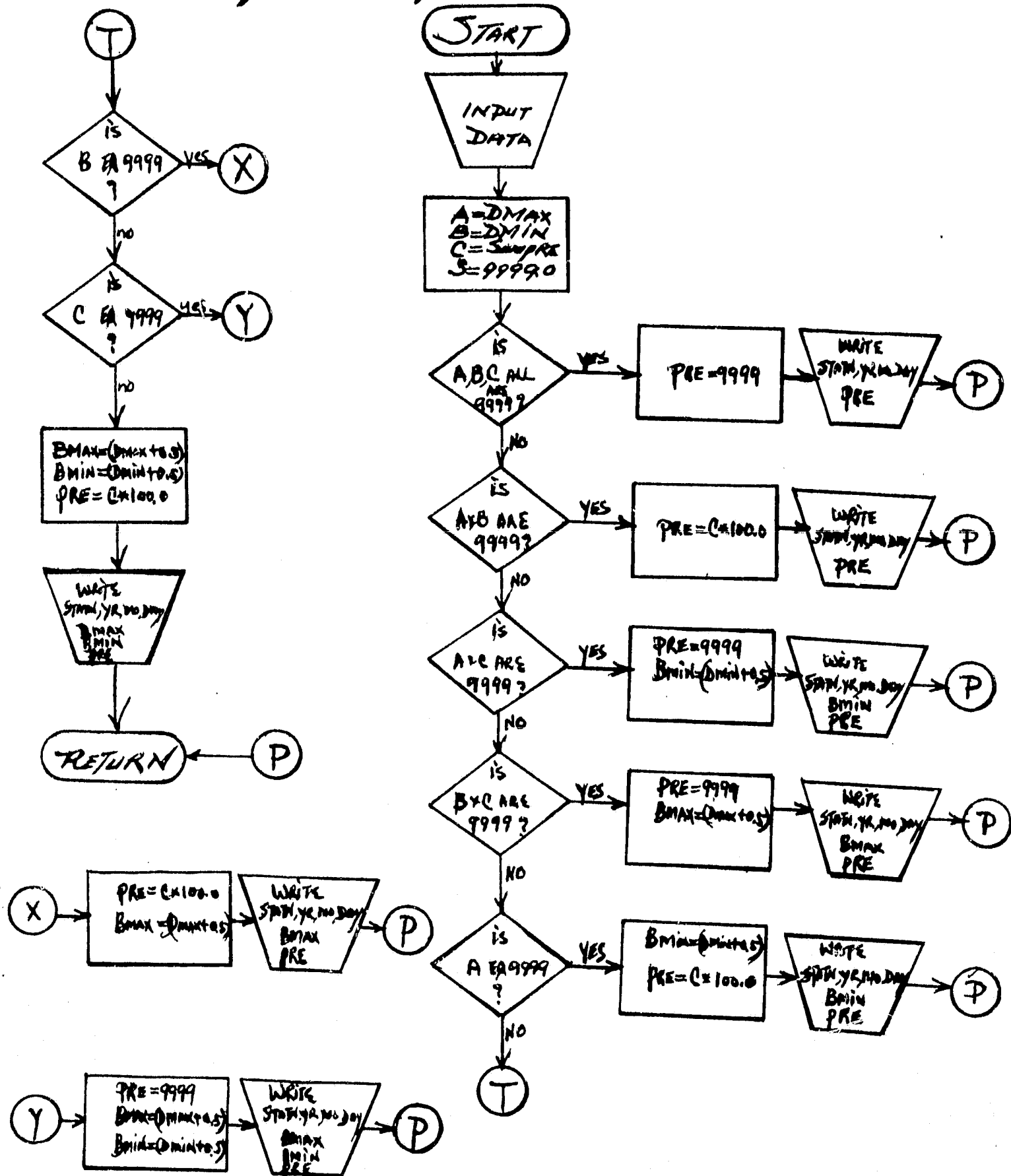
```

0001  TIME OUTIN POLDO*(DTX+H,X,STMX*DL,T,SC)
      THIS SUBROUTINE POLDO* IS USED TO ESTIMATE THE DTX FOR THE
      STATISTIC LOCATED AT THE TIME /CNR HD=02
0002  GOAL 2(=2),X(=0)
0003  CONST=1.17-427
0004  D(1)=0.312428
0005  D(2)=0.001762
0006  X(1)=SC
0007  X(2)=PL*TS
0008  SUMDTX=CENST
0009  DO 200 I=1,2
0010  SUMDTX=SUMDTX+D(I)*X(I)
0011  CENST=SUMDTX
0012  DTX=SUMDTX
0013  RETURN
0014  END

```

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FLOWCHART FOR THE SUBROUTINE OUT



```

0001      SUBROUTINE OUT(STATN,YEAR,MONTH,DAY,DMAX,DMIN,SUMPRF,BMAX,BMIN,
C          #PRF)
0002      THIS SUBROUTINE PUTS THE DATA INTO THE CORRECT OUTPUT FORMAT
0003      INTO THE STATN,YEAR,MONTH,DAY,BMAX,DMIN,PREF
0004      LOCAL DMAX,DMIN,SUMPRF
0005      BMAX=0
0006      DMIN=0
0007      C=SUMPRF
0008      S=0
0009      IF ((A.EQ.5).AND.(B.EQ.5).AND.(C.EQ.5)) GO TO 100
0010      IF ((A.EQ.5).AND.(B.EQ.5)) GO TO 200
0011      IF ((A.EQ.5).AND.(C.EQ.5)) GO TO 300
0012      IF ((B.EQ.5).AND.(C.EQ.5)) GO TO 400
0013      IF ((A.EQ.5)) GO TO 500
0014      IF ((B.EQ.5)) GO TO 600
0015      IF ((C.EQ.5)) GO TO 700
0016      CHARGE=THE DMAX AND THE DMIN TO A WHOLE DEGREE
0017      BMAX=(DMAX+.5)
0018      DMIN=(DMIN+.5)
0019      CHANGE SUMPRF TO ONE TO 100 AM INCH
0020      PRF=C*100
0021      WRITE(6,10) STATN,YEAR,MONTH,DAY,BMAX,DMIN,PREF
0022      FORMAT(10,312,1X,213,3X,14)
0023      GO TO 500
0024      PRF=C*100
0025      WRITE(6,20) STATN,YEAR,MONTH,DAY,PREF
0026      FORMAT(10,312,10X,14)
0027      GO TO 300
0028      BMIN=(DMIN+.5)
0029      PRF=C*100
0030      WRITE(6,30) STATN,YEAR,MONTH,DAY,DMIN,PREF
0031      FORMAT(10,312,4X,13,3X,14)
0032      GO TO 500
0033      DMAX=(DMAX+.5)
0034      PRF=C*100
0035      WRITE(6,40) STATN,YEAR,MONTH,DAY,BMAX,PREF
0036      FORMAT(10,312,1X,13,6X,14)
0037      GO TO 500
0038      BMIN=(DMIN+.5)
0039      PRF=C*100
0040      WRITE(6,50) STATN,YEAR,MONTH,DAY,BMIN,PREF
0041      FORMAT(10,312,4X,13,3X,14)
0042      GO TO 500
0043      DMAX=(DMAX+.5)
0044      PRF=C*100
0045      WRITE(6,60) STATN,YEAR,MONTH,DAY,BMAX,PREF
0046      FORMAT(10,312,1X,13,6X,14)
0047      GO TO 100
0048      BMAX=(DMAX+.5)
0049      BMIN=(DMIN+.5)
0050      PRF=C*100
0051

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GUT

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0052
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0055

WRITE(6,70)STATN,YEAR,MONTH,DAY,BMAX,3MIN,PDE
70 FORMAT(14,3I2,1X,2I3,2X,14)
999 B. TURN
END